SALISH INTERNAL RELATIONSHIPS

MORRIS SWADESH

NEW YORK CITY

1. Introduction
2. Linguistic distances determined by basic vocabulary correspondences
2.1. Derivation of the formula, standard error
2.2. The test vocabulary
3. Languages and dialects
4. Classification
5. Linguistic distances between branches
6. Distances between divisions
7. Reconstructed early Salish relationships
8. General comment on isoglosses

1. For the purposes of comparative linguistics and for the reconstruction of the prehistory of peoples, it is not sufficient merely to know that a given group of languages are or are not related to each other. French is related to Spanish and it is related to Russian, but there is a tremendous difference of degree. Spanish and French are both modern forms of Latin, the end products of 2000 years of divergent drift. But the common period of the Romance languages and Russian dates back perhaps 5000 years.

For the Salishan stock, the fact of relationship was determined decades back and has become widely known, but very few scholars have any conception whatever of the degrees of relationship or the stretch of time needed to account for the formation of this stock. It is the aim of the present paper to provide some approximate answer to such questions.[1]

2. The method used is a simple one based on the percentage of common elements in a selected basic vocabulary in 30 Salishan languages and dialects. This approach should prove fairly dependable, that is it should correlate well with other lines of linguistic and ethnographic evidence, because it is a well known fact that certain types of morphemes are relatively stable. Pronouns and numerals, for example, are occasionally replaced either by other forms from the same language or by borrowed elements, but such replacement is rare. The same is more or less true of other everyday expressions connected with concepts and experiences common to all human groups or to the groups living in a given part of the world during a given epoch.

In applying this method to Salishan, it was conveniently possible to make use of Boas' Comparative Salish Vocabularies, a compilation of data collected by various field workers, in the Boas Collection of the American Philosophical Society. In many cases the phonetics are inaccurate but it is usually possible to judge whether forms are cognate or not. There may also be some errors in the materials as to the identification of meanings. Finally some difficulty was encountered because Salish phonology has not yet been fully worked out. Present results should be approximately correct, but have to be taken with a degree of caution.

The test vocabulary used in this study consisted of 165 items chosen because they were suitable basic items and because the data for the Salishan languages were available in the Comparative Vocabularies. Where two languages were found to have forms for a given

[1] The present study was made possible by a grant from the Phillips Fund of the American Philosophical Society, for the classification and study of the manuscripts in the Society's Franz Boas Collection on American Indian languages. The Boas Collection includes over 60 manuscripts, large and small, dealing with comparative Salishan and with the various languages of the stock. Our study made principal use of manuscript S 2, Comparative Salish Vocabularies.

concept that were derivable from the same prototype by regular phonological developments in each language, a correspondence was registered. Nisqualli g^{w}adak^{w} and Nootsak wnaw *antler* are thus genetically the same though the Nisqualli shows the regular change of original w to g^{w} and k^{w} and of n to d, while Nootsak evidently has an accentual shift causing the loss of the first vowel. A certain amount of unexplained divergence was admitted. For example, Thompson upnkst, Chehalis pancs, Clallam upn *ten* are classed together even though it is not clear whether original initial u or w has been lost in Chehalis or whether a prefix is present in the other languages.

For each pair of languages, the number of correspondences was converted to a percentage of the total instances. These percentages of cognate vocabulary are shown in Table 1. They were then converted to units of indicated time depth as shown in Table 2. The mathematical formula is

$$i = \frac{\log C}{2 \log r}$$

in which i stands for indicated periods of depth, C is the percentage of basic vocabulary in common and r is the percentage of basic vocabulary retained after one standard period of time. The basic theory leading to this formula is presented in the next section.[2] The standard value of r used was 85%, which is the amount found to persist in modern English by reference to Old English, that is after a period a little over 1000 years, in a vocabulary list similar to that used in Salish. The test vocabulary is given in section **2.2**. Since it cannot be assumed that the rate of drift was the same in English during the last 1000 years and in the Salishan languages during the period in which they have diverged from Proto-Salish, one cannot simply equate the units in Table 2 with 1000 years. For the purposes of the present study, the unit has to be regarded as an arbitrary time period whose exact value is unknown. The relative values obtained can be used with considerable confidence. Thus, Okanagon can be counted as being roughly twice as far removed linguistically from Shuswap as from Thompson because the measure in the first case is 2.1 and in the second 0.9 units.

2.1. Assuming a constant average rate of drift in the basic vocabulary, the effect of elapsing time on an original vocabulary will be to reduce the vocabulary by a given percentage each period by reference to the percentage at the beginning of that period. If 85% is left after one period of time, then there will be 85% of 85%, or 72%, after a second equal period. After the third period there will remain 85% of 72% (that is 61%) of the original and so on for each additional period. The formula is

$$R = r^{p}$$

in which R is the percentage retained after a given number of standardized periods, r is the percent retained after one such period, and p is the number of periods.

If two languages start with the same original stock of basic vocabulary and independently of each other suffer reduction to R_a percent in language a and to R_b percent in language b, the probable common vocabulary will be the product of the retained percentage in each, that is R_a times R_b. If the percentage retained is the same in both languages, as would be the case if they are contemporary languages derived from the same original language after a like period of drift at the same rate, then

$$C = R^2 = r^{2p}$$

On the other hand, if the two languages have been in contact for all or part of the time that has elapsed since their common

[2] In the vital mathematical aspects of this study, generous and discerning help was received from Gordon Gould of Columbia University, who was able to reduce originally cumbersome computations to the simple formulas as they now appear in this paper.

TABLE 1

Interrelationship of Salishan Languages in percent of common vocabulary

	Be	Cx	St	Pt	Fr	Nn	Sq	Lk	Lm	Cl	Nt	Sk	Sn	Ni	Tw	Cw	Ch	Sa	Lo	Qu	Ti	Li	Th	Sh	Ok	Sp	Ka	Pe	Cm	Cr
Be. . . .	—	20	20	23	23	22	18	23	17	19	16	16	16	15	15	15	12	14	13	12	14	19	17	14	16	11	11	11	12	12
Cx. . . .	20	—	55	45	35	27	27	30	28	27	31	22	25	24	22	25	25	23	17	18	15	20	19	17	18	15	15	15	13	15
St.	20	55	—	51	34	34	31	33	34	28	31	25	24	25	17	19	20	23	17	16	16	22	22	24	20	17	17	17	15	17
Pt.	23	45	51	—	42	38	33	34	30	27	35	21	23	26	19	18	20	20	14	15	15	20	19	16	15	11	10	11	10	10
Fr.	23	35	34	42	—	73	50	53	45	36	58	33	34	36	31	21	23	23	19	20	23	28	23	19	20	16	18	16	17	19
Nn. . . .	22	27	34	38	73	—	59	54	47	40	56	31	30	33	25	19	21	19	17	20	20	25	22	17	18	14	15	14	16	17
Sq.	18	27	31	33	50	59	—	38	35	31	48	30	29	32	25	15	17	17	16	14	20	22	18	15	13	12	13	12	14	14
Lk. . . .	23	30	33	34	53	54	38	—	73	63	46	36	35	34	24	18	19	18	19	21	16	20	20	19	20	17	17	18	16	16
Lm. . . .	17	28	34	30	45	47	35	73	—	65	47	41	37	39	27	21	21	20	20	22	16	21	20	19	16	16	16	15	18	17
Cl.	19	27	28	27	36	40	31	63	65	—	40	35	34	31	24	20	22	19	18	22	17	20	17	16	19	16	16	15	16	15
Nt. . . .	16	31	31	35	58	56	48	46	47	40	—	44	43	43	30	19	25	24	19	22	20	26	20	19	20	18	17	18	18	18
Sk.	12	22	25	21	33	31	30	36	41	35	44	—	88	71	32	27	32	28	20	24	18	21	21	19	19	19	20	20	16	15
Sn.	16	22	29	23	34	30	29	35	37	34	43	88	—	75	33	28	31	28	20	23	20	21	23	19	21	21	20	21	19	17
Ni.	15	24	25	26	36	33	32	34	39	31	43	71	75	—	41	30	32	31	21	23	19	24	24	21	21	23	21	21	20	19
Tw. . .	15	22	17	19	31	25	25	24	27	24	30	32	33	41	—	38	39	36	27	22	21	23	21	20	22	19	20	20	19	17
Cw. . . .	15	25	19	18	21	19	15	18	21	20	19	27	28	30	38	—	66	59	43	36	16	19	21	19	18	18	17	18	20	18
Ch. . . .	12	25	20	20	23	21	17	19	21	22	25	32	31	32	39	66	—	83	50	41	17	19	19	18	17	15	16	17	18	16
Sa.	14	23	23	20	23	19	17	18	20	19	24	28	28	31	36	59	83	—	51	43	14	21	18	18	17	17	15	17	19	19
Lo. . . .	13	17	17	14	19	17	16	19	20	18	19	20	20	21	27	43	50	51	—	57	15	18	17	17	17	15	14	14	17	17
Qu. . . .	12	18	16	15	20	20	14	21	22	22	22	24	23	23	22	36	41	43	57	—	16	17	18	17	17	13	15	14	16	17
Ti.	14	15	16	15	23	20	20	16	16	17	20	18	20	19	21	16	17	14	15	16	—	19	22	18	22	18	17	18	18	16
Li.	19	20	22	20	28	25	22	20	21	20	26	21	21	24	23	19	19	21	18	17	19	—	57	48	33	27	27	25	25	23
Th. . . .	17	19	24	19	23	22	18	20	20	17	20	21	23	24	21	21	19	18	17	18	22	57	—	75	47	36	37	38	34	34
Sh.	14	17	20	16	19	17	15	19	19	16	19	19	19	21	20	19	18	18	17	17	18	48	75	—	50	39	40	39	34	32
Ok. . . .	16	18	20	15	20	18	13	20	16	19	20	19	21	21	22	18	17	17	17	17	22	33	47	50	—	64	65	66	54	44
Sp.	11	15	17	11	16	14	12	17	16	16	18	19	21	23	19	18	15	17	15	13	18	27	36	39	64	—	85	86	51	54
Ka. . . .	11	15	17	10	18	15	13	17	16	16	17	20	20	21	20	17	16	15	14	15	17	27	37	40	65	85	—	93	52	55
Pe. . . .	11	15	17	11	16	14	12	18	15	15	18	20	21	21	20	18	17	17	14	14	18	25	38	39	66	86	93	—	52	55
Cm. . . .	12	13	15	10	17	16	14	16	18	16	18	16	19	20	19	20	18	19	17	16	18	25	34	34	54	51	52	52	—	50
Cr.	12	15	17	10	19	17	14	16	17	15	18	15	17	19	17	18	16	19	17	17	16	23	34	32	44	54	55	55	50	—

period, they will have exerted an influence on each other. If one of the two languages displaces a word of the original stock, the second language may imitate the displacement or it may eventually cause the first language to return to the original form. Since these influences may be either in the direction of promoting or of retarding change, the

trends may cancel each other out. The total percentage of change may be the same as in the case of a single language out of contact with related laguages, but the two languages will tend to stay together. In consequence they will diverge from each other less than the maximum probable amount under the formula as we have given it. We must therefore modify the formula so that it gives the minimum probable common vocabulary under conditions of full divergent drift:

$$r^{2p} = \text{Min. } C$$

In a comparative study such as the present one we start with C, the percentage of common vocabulary, and we derive the number of indicated units of time depth. The formula is derived as follows:

$$C = r^{2i}$$

$$\log C = \log r^{2i} = \log r \times 2i$$

TABLE 2

Linguistic Distance between Salishan Languages in tenths of indicated periods

	Be	Cx	St	Pt	Fr	Nn	Sq	Lk	Lm	Cl	Nt	Sk	Ni	Tw	Cw	Sa	Lo	Qu	Ti	Li	Th	Sh	Ok	Ka	Cm	Cr
Be	—	49	49	45	45	46	51	45	53	50	55	55	56	56	56	60	62	65	60	50	53	60	55	68	65	65
Cx	49	—	18	24	32	40	40	37	39	40	36	46	44	46	42	45	53	51	56	49	50	53	51	56	62	56
St	49	18	—	20	33	33	36	34	33	39	36	42	42	53	50	45	53	55	55	46	46	44	49	53	56	53
Pt	45	24	20	—	26	29	34	33	37	40	32	48	41	50	51	49	60	56	56	49	50	55	56	69	69	69
Fr	45	32	33	26	—	10	21	19	25	31	16	34	31	36	48	45	50	49	45	39	45	50	49	51	53	50
Nn	46	40	33	29	10	—	16	18	23	28	17	36	34	42	50	50	53	49	49	42	46	53	51	56	66	53
Sq	51	40	36	34	21	16	—	29	32	36	23	37	35	42	56	53	55	60	49	46	51	56	62	62	60	60
Lk	45	37	34	33	19	18	29	—	10	13	24	31	33	44	51	51	50	48	55	49	49	50	49	53	55	55
Lm	53	39	33	37	25	23	32	10	—	12	23	27	29	40	48	49	49	46	55	48	49	50	55	55	51	53
Cl	50	40	39	40	31	28	36	13	12	—	28	32	36	44	49	50	51	46	53	49	53	55	50	55	55	56
Nt	55	36	36	32	16	17	23	24	23	28	—	25	26	37	50	44	50	46	49	41	49	50	49	53	51	51
Sk	55	46	42	48	34	36	37	31	27	32	25	—	10	35	40	39	49	44	51	48	48	50	50	49	55	56
Ni	56	44	42	41	31	34	35	33	29	36	26	10	—	27	37	36	48	45	50	44	44	48	48	48	49	50
Tw	56	46	53	50	36	42	42	44	40	44	37	35	27	—	29	31	40	46	48	45	48	49	46	49	50	53
Cw	56	42	50	51	48	50	56	51	48	49	50	40	37	29	—	16	26	31	55	50	48	50	51	53	49	51
Sa	60	45	45	49	45	50	53	51	49	50	44	39	36	31	16	—	20	26	60	48	51	51	53	56	50	50
Lo	62	53	53	60	50	53	55	50	49	51	50	49	48	40	26	20	—	17	56	51	53	53	53	60	53	53
Qu	65	51	55	56	49	49	60	48	46	46	46	44	45	46	31	26	17	—	55	53	51	53	53	56	55	53
Ti	60	56	55	56	45	49	49	55	55	53	49	51	50	48	55	60	56	55	—	50	46	51	46	53	51	55
Li	50	49	46	49	39	42	46	49	48	49	41	48	44	45	50	48	51	53	50	—	17	23	34	40	44	45
Th	53	50	46	50	45	46	51	49	49	53	49	48	44	48	48	51	53	51	46	17	—	9	23	30	33	33
Sh	60	53	44	55	50	53	56	50	50	55	50	50	48	49	50	51	53	53	51	23	9	—	21	28	33	35
Ok	55	51	49	56	49	51	62	49	55	50	49	50	48	46	51	53	53	53	46	34	23	21	—	12	18	25
Ka	68	56	53	69	51	56	62	53	55	55	53	49	48	49	53	56	60	56	53	40	30	28	12	—	20	18
Cm	65	62	56	69	53	66	60	55	51	55	51	55	49	50	49	50	53	55	51	44	33	33	18	20	—	21
Cr	65	56	53	69	50	53	60	55	53	56	51	56	50	53	51	50	53	53	55	45	33	35	25	18	21	—

$$2i = \frac{\log C}{\log r}$$

$$i = \frac{\log C}{2 \log r}$$

The percentage of full divergent drift between two languages is relatively large in the first period and gets progressively smaller. This means that the possibility of error is negligible in dealing with shallow time depths and becomes magnified as the depth increases. This can be shown by noting the standard error in the neighborhood of full time units when based on a list of the magnitude we have used, that is 165 items.

Percent of common vocabulary	72	52	37	27	19	14	10
Indicated time depth periods	1.0	2.0	3.0	4.0	5.0	5.0	7.0
Standard error in periods	0.2	0.3	0.3	0.4	0.4	0.6	0.6

The standard error is reckoned as the square root of the number of positive or negative cases, whichever is smaller. For example, if two languages have common forms in 36 cases out of 165, the percent in common is 22%, which corresponds to a time depth of 4.6 units. The standard error is the square root of 36, that is 6 or 3.6% of 165. An error of this magnitude amounts to about four tenths of a period.

The possibility of error is multiplied somewhat by inadequacies of the data and insufficiencies in our present knowledge of Salishan phonology. These factors should lead to a measure of caution in the interpretation of the time-depth values, particularly in dealing with time depths greater than five.

2.2. The vocabulary items used in our study total 165. Our working value for r (85%) was obtained in a study of English involving 225 items. The two lists were largely identical. Items in both lists were: I, thou, he, we, ye, one, two, three, four, five, six, seven, eight, nine, ten, hundred, all, animal, ashes, back, bad, bark, belly, big, black, blood, bone, brother (elder), child (son or daughter), cloud, cold, come, cry (weep), dance, day, dog, dust, ear, earth, eat, egg, eye, far, father, fire, flower, fog, foot, good, grass, green, hair, hand, head, heart, here, hit (with fist), hunt, husband, ice, lake, laugh, leaf, left hand, leg, liver, long, louse, man, meat, mother, mountain, mouth, name, near, neck, night, nose, person, rain, red, right hand, road (trail), root, rope, salt, sand, short, sing, sister (elder), skin, sky, small, smoke, snake, snow, speak, spear (war), star, stone, sun, swim, tail, that, there, this, tongue, tooth, tree, warm, water, what, where, white, who, wife, wind, woman, year, yellow.

Words included in the Salish count but not in the English were: arm, arrow, aunt (paternal), awl, ax, bow, brain, breast, canoe (bark), canoe (dugout), chisel, creek, firedrill, firewood, fishhook, gall, go, grandfather (paternal), grandmother (paternal), hammer, hat, high, horn or antler, house, kidney, knife, leather, lip (lower), low, lung, mocassin, moon, morning, mouse, muscle, paddle, quiver, rib, robe, spoon, stomach, tobacco, uncle (paternal), vein, wolf.

Words in the English count not in the Salish were: they, twenty, and, at, because, berry, bird, bite, blow (wind), breathe, burn, clothing, cook, count, cut, die, dig, dirty, drink, dry, dull, fall, fat, fear, feather, few, fight, fish, float, flow, fly, freeze, give, guts, hear, hold, how, if, in, kill, know, lie, live, many, narrow, new, not, old, other, play, puke, pull, push, right (correct), river, rotten, rub, scratch, sea, see, seed, sew, sharp, shoot, sit, sleep, smell, smooth, some, spit, split, squeeze, stab, stand, stick, straight, suck, swell, thick, thin, think, throw, tie, turn, walk, wash, wet, when, wide, wing, wipe, with, woods, work, worm.

One would judge that the list used for English may on the average represent a slightly more stable set of items. This should be taken into account in forming any esti-

mate about the probable value of the unit of time depth.

3. Boas[3] divides the Salish stock into two divisions and lists twenty 'dialects', giving subdivisions in some instances and pairing two dialects in one case (Lower Chehalis: Upper Chehalis). His classification is as follows:

Interior dialects: Shuswap; Lillooet; Thompson; Okanagon (Okanagon, Lake, Colville, Sans Poil); Columbian (Columbia, Wenatchi, Peskwaus); Spokane; Coeur d'Alène; Kalispel; Flathead (Pend d'Oreilles, Sematuse, Flathead, Plains Salish).

Coast dialects: Bella Coola; Comox (Comox, Pentlatch, Seshelt); Squamish; Lower Fraser (Lower Fraser, Nanaimo, Cowichan); Lkungen (Lkungen, Lummi, Clallam); Nootsack; Nisqualli (Skagit, Snohomish, Nisqualli); Twana; Lower Chehalis (Quinault, Xumtolepc, Lower Chehalis): Upper Chehalis (Satsop, Upper Chehalis, Cowlitz); Tillamook (Tillamook, Nehelim, Siletz).

It is evident that the list of main dialects was intended to be complete, though the enumeration of subdialects is not exhaustive. Full information on subdialects is not available. One can get some idea of the full ramification of the subdivisions by comparing Boas' three subdivisions of Nisqualli (Nisqualli, Snohomish, Skagit) with Marian W. Smith's listing[4] of 'tribal divisions' in the Coast Salish of Puget Sound:

Puyallup - Nisqually: Sahehwamish; Squakson; Puyallup; Nisqually.

Central Puget Sound: Duwamish; Suquamish; Snohomish.

Northern Puget Sound: Swinomish.

Inland Puget Sound: Muckleshoot; Snoqualmie; Skagit.

Each of these divisions embraces from one to twelve villages, including 'extended villages'. Linguistic samples in the Boas Collection of manuscripts in the American Philosophical Society Library[5] suggest that Marian Smith's 'tribal divisions' each had its own minor variations in language. Swinomish, which she sets apart from the other divisions on ethnographic grounds, is linguistically close to Skagit. Thus, it is evident that Boas' three subdialects were chosen as representative of the main subdivisions of the 'dialect'. It may be further inferred—though he does not say so explicitly—that Boas attempted to give a full and rounded picture of the stock. The many Salish dialects one finds mentioned in the literature, when not specifically included in Boas' classification, probably represent minor variations from one of his listed dialects or subdialects.

4. The statistical evaluation of linguistic distances provides an objective basis for the classification of the Salish languages. By this criterion we find Boas' classification confirmed in its general grouping but there are some wide variations in the scale of similarity he subsumed under different headings. This is most striking in the contrast of treatment between Spokane-Kalispel-Flathead, which Boas listed separately, and Comox-Seshelt-Pentlatch, which Boas listed as subdivisions of one dialect. Our figures show the following linguistic distances (Pend d'Oreilles is taken as representative of Flathead):

	Sp	Ka		Cx	St
Ka	0.5	—	St	1.8	—
Pe	0.5	0.2	Pt	2.4	2.0

A linguistic distance as small as two tenths of a unit hardly justifies separate classification, and five tenths of a unit is not very considerable. If such dialects are separated, there can be no reason to lump together dialects as far apart as two full units more or less.

To rationalize the classification of the Sa-

[3] Franz Boas and Herman H. Haeberlin, Sound Shifts in Salishan Languages, IJAL 4.117–36, especially 4.120.

[4] The Coast Salish of Puget Sound, AA 43.197–211.

[5] Especially Marian W. Smith, Vocabularies in Nootsack and other Coast Salishan languages, ms. S 8 in the Boas Collection.

lishan languages, we may base ourselves on definite criteria in terms of units of linguistic distance. Suppose we designate as a language any dialect continuum not broken by more than five tenths of a unit. Languages separated by a full unit more or less may be taken together as constituting language groups. Languages and language groups having a separation of two or more units may be combined in branches and divisions according to their relationships in the stock as a whole.

Boas' use of the term dialect is a very broad one; evidently equivalent to subdivision in general and mostly coinciding with the designation language as used by other scholars. Scholars commonly use dialect to refer to a local variety of a language. Language in turn is used for a continuum of dialects such that each is mutually intelligible with its neighbors.[6]

Since the measure of mutual intelligibility is usually a subjective one, it is not possible without special research to equate it with a measure of time depth or even to be sure that such a measure can be discovered. The criterion used in the present paper therefore does not necessarily correspond with mutual intelligibility.

Boas' division of Salishan into Coast and Interior dialects was surely never intended to be more than a convenient geographic breakdown with only approximate linguistic implications. With the aid of statistical measures, we can now consider a strict linguistic classification. We find that Tillamook is just as far removed from its closest congener on the Coast, namely Lower Fraser, as from Okanagon of the Interior languages. This leads to setting up an independent division of the stock for Tillamook along with its close variants, Siletz and Nehelim. By the same criteria Bella Coola stands apart as a separate division. This bears out Boas' remark that "The B C vocabulary deviates considerably from that of all the other Salish dialects."[7] Both the Oregon Division and Bella Coola have marked phonologic and morphologic peculiarities that support the separateness shown by vocabulary.

The remaining languages of the coastal region form a division and so do the interior languages, but the former grouping is far more ramified than the latter. The total classification reached in this manner is as follows:

I. Bella Coola
II. Coast Division
  A. North Georgia Branch
    1) Comox
    2) Seshalt
    3) Pentlatch
  B. South Georgia Branch
    1) Squamish
    2) Nanaimo Group
      a) Fraser
      b) Nanaimo
    3) Lkungen Group
      a) Lummi
      b) Lkungen
      c) Clallam
    4) Nootsak
  C. Puget Sound Branch
    a) Skagit-Snohomish
    b) Nisqualli
  D. Hood Canal Branch
    a) Twana
  E. Olympic Branch
    1) Satsop Group
      a) Cowlitz
      b) Chehalis-Satsop
    2) Lower Chehalis
    3) Quinault
III. Oregon Division
    a) Tillamook
    b) Siletz
IV. Interior Division
    1) Lillooet

[6] See C. F. Voegelin, North American Indian Languages still spoken and their Genetic Relationships, in Language, Culture and Personality, Essays in Memory of Edward Sapir, 15–40. See p. 16 for criterion of what constitutes a language. Listing of Salishan languages, based on field reports, on pp. 18–9.

[7] IJAL 4.123.

2) Thompson Group
   a) Thompson
   b) Shuswap
3) Okanagon Group
   a) Okanagon-Colville-Sanpoil-Lake
   b) Spokane-Kalispel-Pend d'Oreille
4) Columbia
5) Coeur d'Alène

5. One of the advantages of a statistical valuation of linguistic distance is that it permits a multidimensional recognition of relations. For each division and branch we can note the variation among its components and we can also register the linguistic distance separating it from each of the other branches and divisions. The internal spread of the grouping can be stated as varying from zero (that is the distance between a speech variety and itself) up to a given maximum representing the distance between the two languages which are farthest apart within the set. The external distance between two divisions or subdivisions of the stock has to be stated in terms of a maximum and a minimum, representing the largest and smallest distances, found between languages of the two sets. These values are given in Table 3. Note that figures of necessity have been given only for the languages and dialects specifically included in our study. Boas states that Siletz (in our Oregon branch) is almost identical with Tillamook[8] and this judgment is corroborated by casual inspection of the comparative lists. But it is impossible to translate this general fact into a specific quantity without actual counting. Similarly, our table lists Twana as a representative of the Hood Canal Branch but cannot indicate the quantities for the branch as a whole.

A graphic representation of linguistic distances can to some extent be presented, as in Figure 1. Each language or language group is shown by a box so placed as to be in juxtaposition with its nearest relatives. Language groups separated by two units of time depth are put in adjoining boxes with a common boundary. Separations of three units are shown by a narrow space intervening between the boxes, separations of more than three units are shown by a wide space. The two dimensions of the diagram make it possible to show relations in as many as four directions.

Since linguistic distances are a product of physical separation and diminished social contact over a period of time, this diagram suggests approximate geographic relations in an earlier epoch. For example, one finds confirmed in it the probability that the Oregon Division owes its present location to a relatively recent migration. It is probable that the stock as a whole has been spreading southward and eastward under pressure from Wakashan and other northern peoples. In the meantime westward moving Chinookan

TABLE 3

Linguistic Distances within and between Branches of the Salishan Stock

	Bella Coola	North Georgia	South Georgia	Puget Sound	Twana	Olympic	Tillamook	Interior
Bella Coola	0	4.5–4.9	4.5–5.5	5.5–5.6	5.6	5.6–6.5	6.0	5.0–6.8
North Georgia	4.5–4.9	0–2.4	2.6–4.0	4.1–4.8	4.6–5.3	4.2–5.6	5.5–5.6	4.4–6.9
South Georgia	4.5–5.5	2.6–4.0	0–3.6	2.5–3.7	3.6–4.4	4.4–6.0	4.5–5.5	3.9–6.6
Puget Sound	5.5–5.6	4.1–4.8	2.5–3.7	0–1.0	2.7–3.5	3.6–4.9	5.0–5.1	4.4–5.6
Twana	5.6	4.6–5.3	3.6–4.4	2.7–3.5	0	2.9–4.6	4.8	4.5–5.3
Olympic	5.6–6.5	4.2–5.6	4.4–6.0	3.6–4.9	2.9–4.6	0–3.1	5.5–6.0	4.8–6.0
Tillamook	6.0	5.5–5.6	4.5–5.5	5.0–5.1	4.8	5.5–6.0	0	4.6–5.5
Interior	5.0–6.8	4.4–6.9	3.9–6.6	4.4–5.6	4.5–5.3	4.8–6.0	4.6–5.5	0–4.5

[8] IJAL 4.135.

and Sahaptin tribes may have impelled the forerunners of the Oregon Division to migrate from an earlier position in which they were in contact with their Salishan relatives.

6. As for the divisions of the Salishan stock, the internal time depths are: Bella Coola 0; Coast Division 0–6.0; Oregon Division ?; Interior Division 0–4.5.

Bella Coola, constituting a single homogeneous language, shows no important amount of internal divergence. The Oregon Division has a limited amount of divergence among its three dialects, Tillamook and Siletz and Nehelim, but we cannot report the precise extent because our study included only one of these three. The Interior Division displays a wide divergence between its extreme members, Lillooet and Coeur d'Alène, as the cumulative effect of relatively small steps (about two units at most) in a continuum from one end to another of the entire range. The greatest ramification is in the Coast Division, where one passes by abrupt steps of three units, more or less, between the branches, with a maximum internal divergence of 6.0. This is only about one unit less than the maximum for the entire stock. These comparative figures imply important differences in the cultural contacts maintained among the peoples speaking each group of languages. The ramification of the Coast Division is not surprising in view of the accidented topography of the coastal region with its islands, deep inlets and mountain ranges. Populations here very early

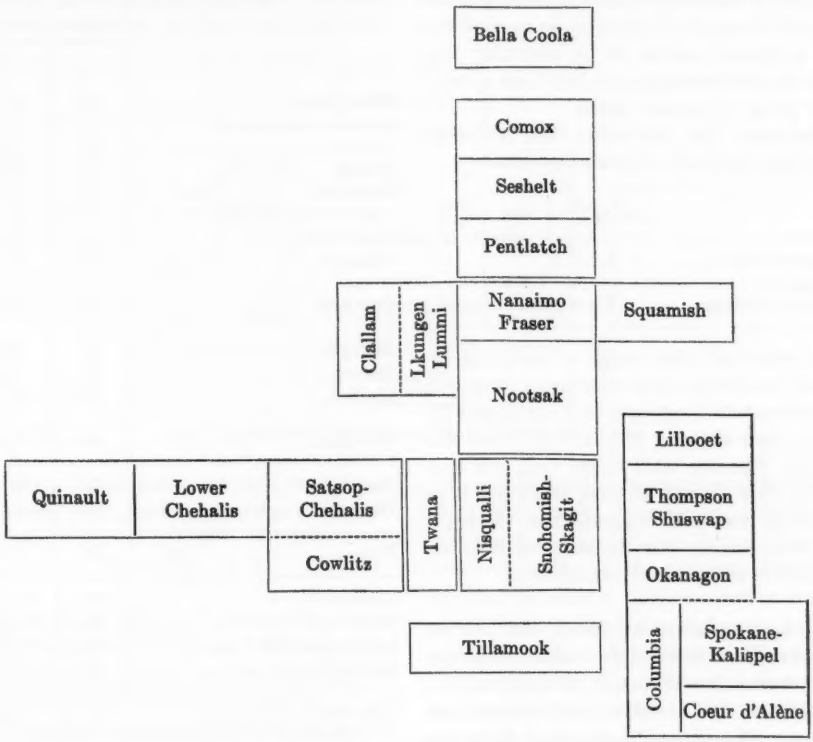

FIG. 1. Salish internal relationships

found themselves in relative isolation. Communications may have been somewhat better in the interior, but in addition it is probable that the present broad territorial spread of the interior languages may be the product of relatively recent expansions. The homogeneity of Bella Coola may be explained either by assuming that neighboring tribes have so hemmed in this tribe as to cut down its territorial spread or by assuming that this is a last remaining dialect from a ramified group in earlier times.

Between the Divisions the following ranges of linguistic distance are found:

	Bella Coola	Coast	Tillamook
Coast Division	4.5–6.5		
Tillamook	6.0	4.5–6.0	
Interior Division	5.0–6.8	3.9–6.9	4.6–5.5

The relatively wide range of variation between minimum and maximum linguistic distances with languages that are geographically close showing a relatively small linguistic distance, and those that are geographically distant showing relatively large linguistic distance, suggests that for much of their history the Salishan dialects remained in contact with one another.

7. As a means of obtaining some notion of the earlier history of the Salishan dialects, a reconstruction was made of 'Early Salish', a construct dialect dating back four periods of time. The procedure consisted of noting all forms shared by any pair of languages removed four periods or more from each other. The inference is that all such forms were in use four periods ago. For example, smant *mountain* or some related form is found in this meaning in Quinault and most other languages of the Coast Division and also in Bella Coola. Since Bella Coola and Quinault have been found to be 6.5 periods apart, smant *mountain* must have been in use in Salish that many periods ago. The form tupxl *to hit with fist*, found in Lillooet and Nootsak, must date back four periods or more because Lillooet and Nootsak are found to be 4.1 periods apart. Since we have a number of pairs of languages four or more periods apart, the probability is high that we can recover almost all of the basic vocabulary of this degree of antiquity. As is to be expected there are some items for which we have two or even three forms that meet our age criterion. In such cases we take the form that is most widespread. The net result

TABLE 4

Relationships of Sal'shan languages to Reconstructed Early Salish

	Common vocabulary	Ancient time depth
	%	
Bella Coola	26	2.7
Comox	37	1.0
Seshelt	43	0.6
Pentlatch	31	1.6
Lower Fraser	46	0.4
Nanaimo	45	0.4
Squamish	39	0.9
Lkungen	40	0.8
Lummi	39	0.9
Clallam	36	1.1
Nootsak	44	0.5
Skagit	39	0.9
Nisqualli	40	0.8
Twana	37	1.0
Cowlitz	36	1.1
Satsop	38	0.9
Lower Chehalis	32	1.5
Quinault	33	1.4
Tillamook	31	1.6
Lillooet	43	0.6
Thompson	41	0.7
Shuswap	36	1.1
Okanagon	39	0.9
Kalispel	35	1.2
Columbia	33	1.4
Coeur d'Alene	32	1.5

is a reconstructed vocabulary which may coincide approximately with some of the Salish dialects of four periods back.

Comparing each modern Salish language with our Early Salish reconstructed vocabulary, we obtain the percentages shown in Table 4. The calculation of time depth has to be moved four periods back. Common vocabulary between modern languages and

The indicated time depth both on the modern level and as projected back four periods suggest that the forerunners of Bella Coola, Pentlatch, Quinault-Lower Chehalis, Tillamook, Coeur d'Alène and Columbia occupied a peripheral relation to the rest of the stock. By contrast Nanaimo-Fraser, Nootsak and Lillooet occupied the central positions.

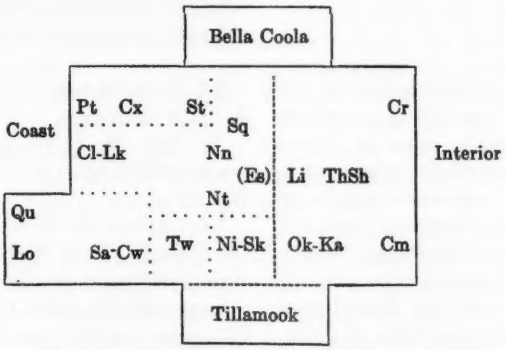

FIG. 2. Linguistic Distances in 'Early Salish' (Es) Times

our Early Salish construct then equals r to the power of 2i plus four, and this gives us

$$i = \frac{\log C}{2 \log r} - 2$$

The resulting distances between this hypothetic Early Salish dialect and the then existing prototypes of each modern language are shown in the last column of Table 4.

These relations suggest the diagram shown in Figure 2.

We may assume that the stock four periods ago occupied a more compact area. Also the location was probably north and somewhat west of the modern center of Salishan territory, but the relative location of the dialects and languages of that period might have been approximately as shown in the diagram.

8. Relationships are manifested in many facets of language. Percentage of common basic vocabulary is but one of many lines of evidence bearing on the problem. Morphologic and phonologic isoglosses can be examined with profit. So too, specific vocabulary isoglosses—the distribution of specific words both native and borrowed. A few of the phonologic isoglosses have been mentioned and briefly discussed in an earlier article[9] and much more remains to be done along this and other lines. The present study is offered as a small but perhaps important contribution to the problem of Salish relationships.

[9] Morris Swadesh, The Linguistic Approach to Salish Prehistory, in Marion Smith ed., Indians of the Urban Northwest (1949) 161–71.

COMPARATIVE SIOUAN III[1]

HANS WOLFF
UNIVERSITY OF PUERTO RICO

3. Proto-Siouan vowels and their development
4. Problems of length and stress
5. Proto-Siouan consonant clusters and their reflexes
6. Bibliography

3.0. A complete reconstruction of the Proto-Siouan vowel system will be possible only after considerably more is known about vowel systems of the existing languages. This would necessitate mainly an accurate study of the function of stress and length in the daughter languages; furthermore, comparative morphophonemics will provide clarification of the behavior of vowels under different conditions of stress, and some of the sections of a comparative Siouan morphology, such as the problem of word formation and derivation, may give us the answers needed to complete an account of Proto-Siouan.

Due to the limitations of this study and some of the above difficulties, the present study is restricted to the reflexes of stressed vowels; the great instability of unstressed vowels makes their reconstruction dependent upon further research.

3.1. Proto-Siouan stressed vowels are: oral *i, *e, *a, *o, *u; nasal *į, *ą, *ų. The five oral vowels are present in all daughter languages; the nasal vowels disappeared in one group (Crow-Hidatsa), and they changed somewhat in several other groups. Thus, the *θ*egiha dialects have only two nasal vowels, while the Ohio Valley languages apparently had more than three. This latter divergence may have been the result of borrowing from non-related Southeastern languages.

In general, it may be said that the five oral vowels of Proto-Siouan remained in all daughter languages, while the nasal vowels changed somewhat in several groups.[2]

3.2. Proto-Siouan *í remained in all daughter languages.

*isí *foot*: Bl. isí Of. čífi Tu. isi· ~ iši Os. *θ*i OmP.K.Q.Č. si D. sihá W. si· M. ši H. íci C. icé.

*si-ri *yellow*: Bl. si ~ sidí Of. fi Tu. si· Os. *θ*i OmP.Q.D. zi W. zi· M. sí·ra Č.ðí H. cí·ric C. ší·re; cp. also Ca. zi *yellow*.

*s-ní *cold*: Bl. snihí Of. ǫčéhi Tu. sani· Os. hníce OmP.D. sni M. šíniho?oš ~ sírihoš W. sinihí H. ciríac; cp. also Ca. čin? *cold*.

*k?ípe *intestines*: Bl. čiwí Of. čípi Os. cešíbe M. si·pe (max) Č. šiwe (max) H. ší·pa C. ší·pe; D. šupé was probably caused by loss of stress.

*tí *house*: Bl. ti Of. atí Tu. ati· Os. ci W. či OmP.K.Q.D. ti D. típi M. ti?iš H. atí C. aše.

*ni- *breath, to breathe*: Bl. níxta *breath*, nixtadí *to breathe* Of. nasíhi Os. niǫ OmP. níu D. niyá M. ní·he?eš *he is breathing*.

*ini- *to live, alive*: Tu. ini· Os.Q.D. ni W. į M. i·ni- H. iric C. iri.

*pí *liver*: Bl. pi Os. cepí D. pi M. pi?ih W. pí·ra H. apišá C. apté.

*m-ní *water*: Bl. aní ~ ni Of. áni ~ aní Tu. mani Os.Q. ni OmP.D. míni M. miní Č. nį W. ni· H. wirí C. wire.

[1] For Comparative Siouan I and II see IJAL 16.61-66 (1950) and IJAL 16.113-21 (1950).

[2] The postulated stability of Proto-Siouan stressed vowels by no means implies a converse instability of unstressed vowels. The latter simply have not been studied intensively, at least not in this paper.

*pi *good*: Bl. pi Tu. pi· Os. píži *no good* D. pi Č. pí W. pį·.

3.3. Proto-Siouan *é remained in all daughter languages.

*k-re(s)- *spotted, striped*: Bl. kdéxi ~ kudéx Of. kadési Os. gðežé *spotted*, gðeθé *striped* OmP. gθeže K. leže D. hdéza ~ hdéška ~ hdéγa M. kxakxé?ereš Č. glégleðe W. -kéreš ~ -kíriš.

*k-répa *to vomit*: Bl. ikné Os. gðébe OmP. gθebe K, lebe D. hdépa M. ke?emi Č. glewe (max) H. karé·c.

*xé- *frost*: Bl. xedí Of. asé Os. xémǫge D. xewáke Č. xémąða.

*Lʸékʸi *tongue*: Bl. yečí Of. iléči Tu. neči ~ leči Os. ðéθe OmP. θezi D. čeží M. résike (max) Č. leje (max) W. re·zí H. ré·ši C. ré·še.

*t-qé *dead, to die*: Bl. te ~ tedí, téye *to kill* Of. te Tu. te· Os. c?e OmP.Q. t?e K. c?e D. t?ečá W. t?e ~ č?ena M. té·here?eš Č. č?e H. te·c C. še·; cp. also Ca. wánare *to die*, wararé *dead*.

*ré- *to go*: Bl. de Of. te Tu. la Os. ðe OmP. θe K. le Ds. ya Dt. la M. re- Č. lé W. re- H. re·c C. re·; cp. also Ca. dane ~ dare.

*taté *wind*: Os. tacé D. taté M. še W.-tačé-Č. taǰé (max) H. hucí C. hucé; cp. Ca. hié.

*péti *fire*: Bl. péti ~ petí Of. apéti Tu. pé·ti ~ pe·č Os. péce OmP. pede K. pyeže Q. pete D. péta Č. péje W. pe·č; cp. also Ca. į·pi·?.

*hąp-ré *to dream*: Os. hǫbðe OmP. hąbθé D. hąmdé *to fast and dream* Č. háje W. hi·hąte·na.

*p-ré(s)- *clear*: D. amdéza, mdésya *to make clear* Č. bleje W. hi-peres *to know*.

3.4. Proto-Siouan *á remained in all daughter languages.

*pá *head*: Bl.Os.OmP.D.Č. pa Tu. pasu·ye M. pa?ah W. pa *nose* H. apá *nose* C. apé *nose*.

*pa- *by pushing*: Bl.Of.D.M.H.C. pa- Tu. pahe· *to pound* Os.OmP. ba- Č.W. wa-.

*p-ra(s)- *flat, broad*: Bl pta Of. pálaši, paláči *wide* Os. bðáða OmP. bθaska K. blaska D. mdaska (Teton blaska) Č. bláθge ~ bláhge W. páras.

*ápi *leaf*: Bl. hapi ~ awi Of. api Os. ábe D. apé ~ waxpé ~ wápa Č. nawe H. wira-apa.

*tápe *ball*: Bl. nitapí ~ nitawį Tu. tapi Os. tabé D. tápa H. waú·tapi; cp. also Ca. wap *to play ball*.

*Lám-ni *three*: Bl. dáni Of. táni Tu. na·ni ~ la·ni Os. ðábðį OmP. θabθį K. yablį D. yámni M. ná·mini Č. táni (max) W. ta·ní H. rá·wi; cp. also Ca. nómna

*kʸáke *hand*: Bl. čak ~ čaké Of. ičáki Tu. ha·ki Os. šáge OmP. šáge D. šaké Č. nąwešage *fingernail* W. ša·k *fingers* H. šá·ki C. išcé.

*Lʸákʸi *name*: Bl. yáče ~ yačí ~ íyače Os. žáže OmP. ižáže D. čažé M. rasé Č láye W. ra·š H. rá·ši (max).

*Lʸámaki *mosquito*: Bl. yamakí Of. čámaki Os. ðápǫga K. yápąge OmP. nahąga D. čapąka W. nawąg-.

*Lʸáxu *lungs, lights*: Bl. yakxú Os. ðáxi D. čaγú W. ra·xóra H. rá·xu.

*xáx- *rough*: Bl. xahí Os. xáxaga D. xa M. xa·xapa H. xaxá·c.

*ra-kát- *hot*: Os. dakáce OmP. nakade K. dakaje D. káta W. takač. Č. taxlą (max).

*áka- *on top*: Os. ágaha D. akapa *the outside*, ákapata *on the outside, on top* M. a·kit Č. aháta H. á·ka *top* ákaha *on top*.

3·5· Proto-Siouan *ó remained in all daughter languages.

*m-ró *potato*: Bl.Of. ató Os. do OmP. nu K. du Ds. mdo Dt. blo W. ró-.

*tó- *blue, green*: Bl. tohí ~ tóhi Of. ičóhi *green* itóhi *blue* Tu. oto· *green* aso·ti *blue* Os. tóθabe *blue* tóho *green* OmP. to ~ tu K.Q. tu ~ tuhu D. to, sota *skycolored* M. toho?oš Č. to W. čo· H. tó-ohic C. šúak.

*iLóti *neck, throat*: Bl. dódo Of. ičóti Tu. loti Os. dóce OmP. nude K. duje Q. dute Ds. doté Dt. lote Č. taše W. ró·xira.

*iLʸó *body, flesh*: Bl. yo ~ yoyá Of. ɟčo ~ ɟčó Tu. yuxtéki Os. žúiga, tažú OmP. žu D. čokádą *bare, naked*, čokú *underside of skin*, čoníča *flesh, meat, kernel of grain* M. ropxíʔi *hide, skin* Č. iló W. ro·rá *inedible flesh* H. raxpí *skin* C. raxpé *skin*; cp. also Ca. wi·dyo *meat*.

*x-ró- *empty*: Bl. xotká Os. xðokʔa D. xdoɣéča *hollow*, xdóka *hole*, čoká *empty* M. kikó·hoʔoš Č. xlósge W. šóroš *hole*; cp. also Ca. -hakčó *hole*.

*xóti *gray*: Bl. toxká Os. xóce D. xóta M. xo·toʔoš Č. xoǰe H. xó·tac *real gray* có·tac *it's gray*.

3.6. Proto-Siouan *ú usually remained in all daughter languages; there are a few instances where it changed to /i/ in the θegiha group.

*skú- *sweet, sour*: Bl. čkuyé ~ čikuye Of. amaskúwe *salt* D. skúya M. skúhoʔoš Č. sko H. cikúac.

*hú- *to come*: Bl. hu Of. kiúkna Tu. yahu·a Os. gió *come!* D. ku *to come home* u *to come* W. gu· *to return* Č. gu *to be coming back* M. hú·roʔoš H. hu·c C. hu·k.

*xú- *knee*: M. sú·paxe D. xupáhu *arm, wing* H. ixúax·a C. išú·še.

*rútka *pigeon*: Bl. utí Of. ačúta Tu. wayu·tka·i Os. ðita W. ručge; cp. also Ca. túsi *dove*.

*rú-ti *to eat*: Bl. dúti Of. túti Tu. lu·ti Os. ðacé OmP. θáta D. yúta M. rutóʔoš Č. luǰe W. waru·č H. ru·tíc C. ruší.

3.7. Proto-Siouan nasal *į was denasalized in Crow-Hidatsa, where it appears as /i/; it remained in all other daughter languages.

*Lʸík- *young, small*: Bl. yíki Of. čiki Tu. yęki Os. žíga D. čičá M. konɟ·ka *young animal* Č. síŋe W. ni·k H. šiká·ka *big boy* C. šiká·ka·te *little boy*.

*sít- *tail*: Bl síndi ~ sit Of. fíte Os. θíce OmP. sinde K. sinǰe D. sité Č. siǰe (max) W. sič M. šu·t (!)

*k-qí *to carry*: Bl. ki ~ kidí Os. kʔį OmP. ʔį K. kʔį D.kʔį, kičʔí *to carry one's own* W. kʔi·- H. ki-ic *he carried on back* C. ci·k ~ cí·ak.

*kʸí *fat*: Bl. ačíni *grease* číšti *very fat* Of. ičí Os. šį *to be fat* waší *fat meat* D. šį M. šíre W. ši· Č. sį *to be fatty*.

3.8. Proto-Siouan nasal *ą remained in Dakota and in Čiwere-Winnebago and Omaha-Ponca. The Mandan reflex is /ą/ and sometimes /a/; the reason for the denasalization is not apparent.

The Osage reflex of *ą is /ǫ/; we find reflexes /ą/ and /ǫ/ in the Ohio Valley group.

In Crow-Hidatsa *ą was always denasalized and appears as /a/ or /a·/.

*há *night*: Os. hǫ OmP. hą D. hą ~ hąyétu, xtąyetu *evening* Č. háhe, ohąžé *dark* W. hąxé H. háp·e·hišic *it's dark, evening*.

*xtá- ~ *xát- *large, big*: Bl. tą Of. itǫ́ Tu. itąi Os. tǫ́ga OmP. tągá D. táka Č. xáǰe W. xaté M. xtéʔere H. raxtapi (obsolete) C. isá· ~ isá·te.

*nahąp- *day*: Bl. nąpi ~ nápi Of. nǫ́pi Tu. nahąp Os. hǫ́ba D. ápa ~ ąpé M. hape Č. háwe W. hą·p; cp. also Ca. yab.

*Lʸą́ *wood*: Bl. ayą́ Of. ičǫ́ Tu. miyęi ~ miyę Os. žǫ OmP. žą Q. yǫ D. čą M. mána Č. ną W. ną· H. wirá C. waré; cp. also Ca. yap.

*-Lʸáti *heart*: Bl. yándi ~ yantí Of. ičánti Tu. yą·ti ~ yanti Os. ðǫ́ce ~ nǫ́ce OmP. nąde K. nąče D. čaté M. nátkaʔa Č. náhǰe W. nąčgé H. rá·ta C. rá·se.

*i-tąk- *sister*: Bl. tąki ~ tąk *elder sister* Of. itǫ́fka Tu. tahąk Os. itǫge *elder s.* K. witǫge *younger s.* D. táka *woman's younger s.*, také *man's elder s.* Č. taŋe (max) H. itawíaš *older s.* C. isahká·te *elder s.*

*nąk- *to stand, stay*: Bl. nanki *sitting* Of. nǫki Tu. nąka Os. nǫží D. yąká *to be, exist* M.-hąk in *standing position* Č. náŋe *sitting* W. nąží; cp. also Ca. rare *to stand*.

*má- *arrow*: Bl. ąks Of. ǫ́fi Tu. mąksi· ~ mąko·i Os. mǫ OmP.K.W. mą D. wą M. má·ʔita Č. max; cp. also Ca. wah.

*mąk- *chest*: Bl. mak Of. amǫki Os.

mǫ́ge OmP.K. mąge D. makú Č. mąŋe W. mąg-ra.

*wą *man*: Bl. ąyá Of. ą́kwa Tu. wahtahka, waiwáx Os. wǫ D. wą- M. núma?ak Č. wą́ŋe W. wąk H. wacé C. wacé·.

3.9. Proto-Siouan *ų́ remained in Dakota and in Mandan, as well as in Čiwere-Winnebago. Ohio Valley reflexes are /ų/ and /ǫ/.

*ų́ became /ǫ/ in Osage and /ą/ in Omaha-Ponca.

*kʸų́k- *dog, horse*: Bl. čų́ki ~ čųkí Of. ačų́ki Tu. čųk Os. šǫ́ge Q. šųke D. šų́ka Č. šųge (max) W. šųk H. wašú·ka C. miške.

*mąkʸų́ *feathers*: Os. mǫ́šǫ D. šų M. si (!) Č. mąšų W. ma·šų H. wašo·ki (max).

*-sųk- *younger brother*: Bl. sųtkáka Tu. wisųtk Os. iθǫ́ga OmP. isąga D. sųka M. pšųká (max) Č. sų́ŋe (max) W. hisųk H. acu·ká C. icú·ke.

*-kų́ *grandmother*: Bl. kųkú Of. ikóni Tu. hikú· Os. ikó Q. eką D. kúši ~ kúšitku Č. iku W. kúnika H. ikú·š.

*núpa *two*: Bl. nǫpá Of. núpa Tu. nompa Os. nǫbá ~ ǒǫbá K. nampa D. núpa M. nup W. nųp Č. nowe (max) H. rú·pa C. nu·p; cp. also Ca. nąpre.

4.0. Problems of length and stress in Siouan will be considered briefly. Before any clear and conclusive statements can be made about the status of these features in Proto-Siouan, a great deal of painstaking and accurate research will be necessary in those daughter languages where such research is still possible. We would welcome a series of phonographic transcriptions of texts and conversational material in the different existing Siouan languages, which would make it possible to observe all prosodic features and to evaluate their structural significance. Such exhaustive studies as Susman's monograph on Winnebago[3] would be much more valuable to the comparativist, if they were supplemented by similar monographs on other existing Siouan. It is unfortunate that the books are completely closed on the Ohio Valley group, but much may be inferred for this group, once more extensive information becomes available on existing daughter languages.

4.1.1. Length is definitely phonemic only in Crow, in Hidatsa, and in Mandan; it is definitely not phonemic, nor has it ever been so recorded, in Dakota, in Čiwere, and in the θegiha group. In Winnebago the issue is still to be decided. Length seems to have been non-phonemic in the Ohio Valley group; such, at least, is the impression gained from the relatively normalized transcriptions of these languages. However, in order to facilitate work in this field in the future, we have written length in the Ohio Valley languages whenever the available material definitely marked it.

It is believed at present that length was structurally non-significant in the Proto-Siouan parent language, and that it represents a relatively recent innovation in those languages which have phonemic length.

4.1.2. In Winnebago the question of length and stress seems to be extremely complicated. Susman, in the monograph mentioned above (**4.0.**) describes both length and stress as phonemic. In one of his most recent publications Radin[4] describes long vowels as allophones of short vowels and declares that stress is definitely not phonemic. Our own impression, gained from an examination of Radin's text materials, is that stress does not occur in any easily predictable patterns, while length may or may not be purely prosodic.

4.1.3. As indicated above (**4.1.1.**) vowel length is phonemic in Crow and in Hidatsa. However, an additional problem is pre-

[3] A. Susman, The Accentual System of Winnebago, New York (1943).

[4] The Culture of the Winnebago: As Described by Themselves, pp. 6–7, IUPAL (1949).

sented by the series of long consonants which occur in Hidatsa (p·, t·, c·, š·, x·); since these consonants are not paralleled by any such series in Crow nor in any other Siouan language, it seems that they too are a late development, caused, perhaps by certain stress changes. The period of Hidatsa for which such a development would be postulated must necessarily follow that of Crow separation from Hidatsa.

4.2.1. Stress appears phonemic in all existing Siouan languages; it also seems to have been phonemic in the Ohio Valley group. Stress is therefore reconstructed as phonemic for Proto-Siouan.

A detailed history of the development of Siouan stress will have to wait until the comparative morphophonemics and morphology of this family have been worked out. However, one of the striking features of the changes which occurred in the history of Siouan is the tremendous variation in word stress which affected most languages in most of the groups. Comparative word lists in the following paragraphs will illustrate contrasts in stress between two languages of the same group (Biloxi and Ofo) and between two languages belonging to two distinct groups (Osage and Dakota).

4.2.2. Differences of stress between Biloxi and Ofo of the Ohio Valley group are illustrated by the following list of cognates; in citing, the Biloxi form precedes the Ofo form which is followed by English translation for both: ǫtí, úti *bear*; iná, íla *sun*; itá, íya *deer*; ąyá, ąkwa *man*; iší, čífi *foot*; su, ífu *seed*; dasé, táfe *to bite*; kąxó, etikǫ́so *grandfather*; xedí, asé *frost*; nixuxwí, nasúsi *ear*; xoxó, ašóšo *to cough*; ahó, áho *bone*; įsú, ífa *tooth*; pusí, upófi *night*; dičí, líči *to dance*; dučadí, túča *to wash*; čiwí, čípi *intestines*; yamakí, čámaki *mosquito*; yaní, ičáni *tobacco*; yečí, iléči *tongue*; topá, tópa *four*; nató, nátu *brain, hair*; nǫpá, núpa *two*; dǫhí, atǫ́hi *to see*; utí, ačúta *pigeon*.

	Čiwere	*Winnebago*
	bláθge	páras-
	θléje	šéreč
	glégleče	-kéreš
	šákwe	hakéwe
	xlósge *empty*	šóroš *hole*
Also:		
	úniŋe	hųnąk
	nį	ni·
	táni	ta·ní

4.2.3. Differences in word stress between Osage of the θegiha group and Dakota are illustrated by the following list of cognates (with Osage preceding Dakota forms): mǫ́ge, makú *chest*; hǫ́bče, hąmdé *to dream*; ábe, apé *leaf*; ni, míni *water*; mǫ́hįθpe, ąspé *axe*; θíce, sįté *tail*; íθagče, sagyé *cane, stick*; gčežé, hdéza *spotted*; áška, aškádą *near*; ákikipa, akípa *to meet*; xémǫge, xewáke *frost*; húxpe, hoxpá *to cough*; hǫbé, hápa *moccasin*; účage, oyáka *to tell*; šáge *hand*, šaké *claws*; ceší́be, šupé *intestines*; čápǫga, čapáka *mosquito*; čǫ́ce, čąté *heart*; čéθe, čeží *tongue*; čáxi, čaγú *lungs*; agác?e, š?e *to drip*; tabé, tápa *ball*; čacé, yúta *to eat*; nǫbá, núpa *two*; wačátǫ, yatká *to drink*.

4.2.4. Further evidence of the importance of stress in the development of the Siouan daughter languages is provided by the development of certain Proto-Siouan clusters in Winnebago as compared to their development in Čiwere and other languages. The following short list of cognates will illustrate these differences.

Others	*Cluster*	
D. mdáska	*p–r	*flat*
Of. ftétka		
Os. scecé	*s–r	*long*
D. hdéza	*k–r	*spotted*
D. šákpe	*k–p	*six*
D. xdóka	*x–r	*hole*
M. ó·minike	*m–n	*beans*
D. mini		
M. míní		
H. wirí	*m–n	*water*
D. yámni		
M. ná·mini		
H. rá·wi	*m–n	*three*

It seems evident, especially from the first part of this list, that the correspondence Čiwere CCV to Winnebago CVCV is the result of changes in the stress pattern. This correspondence was first discovered by Dorsey and published in his pioneering paper on Siouan sound correspondences,[5] so that the term "Dorsey's Law" seems quite applicable to this phenomenon. As will be shown in the chapter on clusters (**5.** below), Dorsey's Law is not restricted to the Čiwere-Winnebago group but is a rather wide-spread phenomenon, shared by several other daughter languages, especially frequent in Mandan.

5.0. All Proto-Siouan consonant clusters were two-consonant clusters. They occur in morpheme initial or medially, but apparently never in final position.

Most reconstructed clusters are of a type which we may term "open juncture" clusters; this type is characterized by the presence of an intrusive, non-phonemic, vowel, probably shwa, which is heard between the consonants which constitute the cluster. Such clusters are designated in this study by a sequence of consonants separated by dash (C–C).

A limited number of clusters are simple sequences of two consonants, without intervening vowel and will be symbolized in the conventional manner. In contrast to the aforementioned clusters we may term these "close juncture" clusters.

5.1. Proto-Siouan clusters which have been reconstructed[6] include:

5.1.1. Open juncture clusters: *p–q, *t–q, *kʸ–q, *k–q; *p–r, *s–r, *x–r, *kʸ–r, *k–r; *m–n, *s–n, *k–m; *m–t, *w–t.

5.1.2. Close juncture clusters: *xt, *tk, *sk, *kʸk, *xk, *kx, *sp, *kkʸ.

5.2.0. Reconstructed *C–q cluster lost *q in the Ohio Valley group and in Crow-Hidatsa. We find a C? cluster in Dakota and Čiwere-Winnebago.

If the first element was *p, the second element was lost in Osage, and /p/ remained; if the first element was *k, it was lost, and /?/ remained in Omaha-Ponca. In all other cases the θegiha group has reflex C?.

*C–q reflex in Mandan is a sequence CV?V in which the first and second vowel are identical.

5.2.1. One example of *p–q has been found:

*p–qa *bitter*: Bl. Os. pa D. p?a M. pá?aroš.

5.2.2. Reflexes of *t–q are shown by:

*t–qé *to die, dead*: Bl. te ~ tedí Of. te Tu. te· Os.K. c?e OmP.Q. t?e D. t?a *to die*, t?ečá *dead* M. té·here?eš Č. č?e W. č?ena ~ t?e H. te·c C. še·; cp. also Ca. wánare *to die*, wararé *dead*.

5.2.3. Proto-Siouan *kʸ–q: *kʸ–qé *to drip, drop*: Bl. čé ~ čehí Os. agac?e D. š?e W. x?e M. se?eho?oš.

5.2.4. The following cognates illustrate reflexes of *k–q.

*k–qú *to give*: Bl. kú Of. akú Tu. nko Os. k?i ~ wak?í, k?u *to give away*, OmP. ?i D. k?u Č. -k?u W. -g?u M. wakú?uro?oš *I give it to him* H. ku–u *give it to him*.

*k–qį *to carry*: Bl. ki ~ kidí Os. k?į OmP. ?į K.D. k?į D. kič?į *to carry one's own* W. k?i·- *carry on back* H. ki–ic *he carried on back* C. ci·k ~ cí·ak.

*k–qé *to dig*: Bl. ke ~ kedí Os. k?e OmP. ?e M. hké?ero?oš D.W.Č. k?e H. ke–ec *he dug it*; cp. also C. ruhkápi *to scratch*; also, Ca. wi·takí?are *to dig potatoes*.

[5] On the Comparative Phonology of Four Siouan Languages, Annual Report of the Board of Regents of the Smithsonian Institution, 1881, pp. 919–29.

[6] Proto-Siouan must, of course, have had considerably more clusters than have been reconstructed in this paper; our list contains only those clusters which were easily traceable. Catawba material was not examined carefully for traces of Proto-Siouan clusters.

5.3.0. *C–r clusters and their reflexes in the daughter languages are listed in the following sections (**5.3.**) below.

5.3.1. Reconstructed *p–r becomes /bð/ in Osage and /bθ/ in Omaha-Ponca. The Santee Dakota reflex is /md/, corresponding in Teton to /bl/.

Čiwere preserves the cluster while changing the phonemes to /bl/; Winnebago, however, while preserving the original phonemes, has a sequence pVrV in which the two vowels are identical. This correspondence between Čiwere and Winnebago is consistent with respect to all reflexes of *C–r clusters.

The data on *p–r reflexes in the Ohio Valley group is insufficient, and no cognates have been found in Mandan and in Crow-Hidatsa.

*p–ra(s)- *flat*: Bl. pta Of. pálafi Os. bðák?a OmP. bθaska K. blaska Ds. mdaska Dt. blaska Č. bláθge ~ bláhge W. páras-.

*p–res- *clear*: D. amdéza, mdésya *to make clear* Č. bleje W. hi–peres *to know*.

*hąp–re *to dream*: Os. hǫ́bðe OmP. hąbθé D. hąmdé *to fast and dream* Č. hájе W. hi·hąte·na *he dreams*.

5.3.2. Proto-Siouan *s–r, reconstructed from only one set of cognates, shows the following development: Ofo has /ft/, Osage /sc/, and Omaha-Ponca /sn/. The Dakota reflex seems to be /sd/.

The Čiwere reflex is /θl/, while Winnebago has a sequence šVrV with identical vowels.

*s–ré *long, tall*: Bl. tudé (cognate ?) Of. ftétka Os. scecé OmP. snede Č. θléje W. šéreč.

*s–re- *to split*: Os. scége OmP. sne- D. kasdéča Č. šlege (θlege?).

5.3.3. Reconstructed *k^{y}–r has the following reflexes: /čd/ in Biloxi, /šd/ in Osage, /šn/ in Omaha-Ponca, and /št/ in Kansa. Also, /st/ or /št/ in Dakota.

The Mandan reflex is a sequence sVrV, involving two different vowels; both Winnebago and Hidatsa have sequences šVrV where both vowels are identical.

Only one set of cognates has been found.

*k^{y}–ró ~ *k^{y}–ra *smooth, bare*: Bl. čdo, čdóye *to smoothe*, siduhi *worn smooth* Os. bašdáha *to make smooth* OmP. šna K. šta D. sto *smooth*, šda *bare, bald, naked* W. šára *naked, bare* M. pahiseroko?oš *without hair, bald* (max) H. rášarášic *smooth*.

5.3.4. *k–r has single consonant reflexes in Kansa, where it became /l/ and in Mandan, where the second element dropped and /k/ remained.

Cluster reflexes of *k–r are /kd/ or /kn/ in Biloxi, /gð/ in Osage, and /gθ/ in Omaha-Ponca; also, /gl/ in Čiwere and Teton Dakota and /kd/ in Yankton Dakota. The Santee Dakota reflexes are /hd/ in morpheme initial and /gy/ medially.

Larger sequence reflexes are kVlV in Ofo and kVrV in Winnebago. The Hidatsa reflexes are kVrV in morpheme initial and /k/ in medial position.

*k–réx- *spotted, striped*: Bl. kdéxi ~ kudéx Of. kalési Os. gðežé *spotted*, gðeθé *striped* OmP. gθeže K. leže D. hdéza ~ hdéška ~ hdéya M. kxakxé?ereš Č. glégleðe W. -kéreš ~ -kíriš.

*k–rep- *to vomit*: Bl. ikné Os. gðébe OmP. gθebe K. lebe D. hdépa M. ké?emi Č. glewe (max) H. karé·c.

*sak–re *staff, cane*: Os. íθagðe D. sagyé H. í·caki.

5.3.5. Reconstructed *x–r had the following reflexes: /xð/ in Osage, /xd/ in Dakota, /xl/ in Čiwere, and šVrV in Winnebago. The data is insufficient for the Ohio Valley group as well as for Mandan and Crow-Hidatsa.[7]

*x–ro *empty, hollow*: Bl. xotká Os. xðók?a D. xdóka *hole*, xdoγéča *hollow* M. kikó·ho?oš

[7] We would welcome additional data from Mandan and Crow-Hidatsa, as well as from all other daughter languages. Unfortunately, the books seem all but closed on Ohio Valley Siouan.

Č. xlósge W. šóroš *hole*; cp. H. hopí *hole*; cp. also Ca. -hakčó *hole*.

5.4.0. Reflexes of *C–C clusters whose second element is a nasal are treated in the following (**5.4.**) sections.

5.4.1. Reflexes of *m–n depend on its position in the morpheme.

In morpheme initial it became /n/ in Biloxi, Ofo, Osage, Čiwere-Winnebago; but it became mVnV in Tutelo, Omaha-Ponca, and also in Dakota and Mandan. It became wVrV in Crow-Hidatsa.

Medially, *m–n remained in Dakota; it became /n/ in the Ohio Valley group and in Čiwere-Winnebago. The Mandan reflex is mVnV, while Hidatsa has /w/. θegiha reflexes of medial *m–n are /bð̃/ in Osage, /bθ/ in Omaha-Ponca, and /bl/ in Kansa.

*m–ní *water*: Bl. aní ~ ni Of. áni ~ aní Tu. mani Os.Q. ni OmP.D. míni M. miní Č. nį W. ni· H. wirí C. wire; cp. also Ca. yą ~ ye· *water*.

*umni- *beans*: Os. hǫbð̃íge M. ó·minike Č. únį̨ŋe W. huŋąk; cp. also Of. ąkonakí *beans*.

*ram–ní *three*: Bl. dáni Of. táni Tu. na·ni ~ la·ni Os. ð̃ábð̃į OmP. θabθį K. yablį D. yámni M. ná·mini Č. táni (max) W. tá·ni H. rá·wi; cp. also Ca. nómna.

5.4.2. Reflexes of *s–n and *k–m, reconstructed on the basis of one set of cognates for each cluster, are as follows:

*s–n became /sn/ in Biloxi, Dakota, and Omaha-Ponca. The Osage reflex is /hn/. Larger sequence reflexes are sVnV in Tutelo and Winnebago; šVnV or sVrV in Mandan; and cVrV in Hidatsa.

Reflexes of *k–m are kVm in Ofo and Tutelo; kVwV in Dakota and kVpV in Mandan; /hm/ in Čiwere, but gVwV in Winnebago. The Hidatsa reflex seems to be /hp/.

*s–ní *cold*: Bl. sníhi Tu. sani· Os. hníce OmP.D. sni M. sirihoš *cold*, šinihoš *cold weather*. W. sinihí H. ciríac; cp. also Ca. čin? *cold*.

*sak–ma *seven*: Of. fákumi Tu. sa·kom D. šakówį Č. sáhmą W. ša·gówi H. šahpuwa; cp. also M. kú·pa.

5.5.0. Reflexes of *C–C clusters whose second element was a stop are listed below (**5.5.**).

5.5.1. *w–t has cluster reflexes in Dakota and Mandan, where it became /pt/. In the Ohio Valley group and in θegiha as well as in Winnebago-Čiwere the first element was lost, and the second element development like Proto-Siouan *t. We set up a Proto-Crow-Hidatsa reflex wVtV, which became wVšV in Crow, whenever the second vowel was e or i.

*w–té ~ *w–tá *cow, buffalo*: Bl. itá *deer* Tu. wita·i *deer* Os. ce *cow*, ta *deer* D. pté *cow*, ta *moose* M. ptį Č. ta W. ča *deer* H. wité C. wišé; cp. also Ca. wide- *deer*.

*w–tą *autumn*: Tu. tąyi ~ tąi Os. tǫ D. ptąyétu W. čąni H. wata·.

5.5.2. *m–t remained as a cluster in Dakota, where Santee has /md/, Teton has /bl/; in all other languages we find single-consonant reflexes: /t/ in the Ohio Valley group, /d/ in Osage and Kansa, /n/ in Omaha-Ponca, and /r/ in Winnebago. No further data was available.

*m–to *potato*: Bl. ató Of. ató Os. do OmP. nu K. du D. mdo (Teton blo) W. ró-.

5.6.0. Reflexes of Proto-Siouan close juncture clusters (CC) are listed below (**5.6.**). In all these clusters at least one component is a stop.

5.6.1. Morpheme-initial *tk remained in Dakota and Tutelo; it became /čk/ or /čg/ in Winnebago. In Biloxi, Ofo, θegiha, and Čiwere the second element dropped, and the reflex is /t/.

In morpheme medial *tk was retained in the Ohio Valley group. In all other

daughter languages the first element was lost, and the reflexes are /k/ in Dakota and Mandan, Winnebago and Crow-Hidatsa; /g/ in θegiha and Čiwere.

*rá-tką *to drink*: Os. waðátǫ D. yatká Č. latą W. račką.

*rú–tka *pigeon*: Bl. utí Of. ačúta Tu. wayu·tka·i Os. ðita W. ruče; cp. also Ca. túsi *dove*.

*-sútka *younger brother*: Bl. sutkáka Tu. wisutk Os. iθóga OmP. isąga D. súka M. pšuká (max) Č. súŋe (max) W. hisúk H. icú·ka C. icú·ke.

5.6.2. Before a stressed vowel *sk remained in the Ohio Valley languages; also in Dakota, Mandan, and Omaha-Ponca. The Crow-Hidatsa reflex is /ck/. However, there is one instance of /čk/ in Biloxi, one of /šk/ in Mandan, and one of /cVk/ in Hidatsa.

When following a stressed vowel, *sk remained a cluster /šk/ in Tutelo, Osage, and Dakota; we have /s/ in Biloxi, /f/ in Ofo, /š/ in Mandan. Hidatsa has /hc/, which may be a case of metathesis, if we are dealing with a cognate.

*ská *white*: Os. θka OmP. ska K.D.W.ska Č. θga; the original meaning of this morpheme may have been *white, close by*.

*hąské *long, tall*: Bl. naské D. hąska M. háška H. háckic C. hácke.

*sku *sweet*: Bl. čkuyé ~ čikuye Of. amaskúwe *salt* θkíðe D. skúya *sweet, sour* M. skúho?oš Č. sko H. cikúac.

*rá-ska ~ rá-spa *to bite*: Bl. dasé Of. táfe Tu. olaške Os. ðášǫ *bite hard*, ðašpé *bite*, ðaškíge *chew* D. yašpá H. ráhcic, rápuxic *he pierces with teeth* C. ráxpi; cp. also M. naše?ere.

5.6.3. Proto-Siouan *xk was retained in Biloxi and Mandan, and became /sk/ in Ofo. The Hidatsa reflex is /xVk/.

Other reflexes include /č/ in Dakota, /k/ in Čiwere, and /g/ in Winnebago. The Osage reflex is /k/ or /šk/, preceding stressed vowel and /g/ after stressed vowel.

*éxka *buzzard*: Bl. éxka ~ héxka *black-headed buzzard* Of. éska Os.OmP.K. hegá *turkey buzzard* D. hečá W. hegara; cp. also M. kixká *type of eagle*, ke·ka *raven*.

*-xką- *to shake*: Os. gakǫ́ *shake something* ðiškǫ *shake somebody* D. čąčą́ *to tremble* M. ruxkąxkaho?oš *he shakes by the hand* Č. giká H. xákake·c *he shook it*; cp. also Ca. činá-.

5.6.4. Before a stressed vowel *kx became /x/ in Biloxi and Dakota; other reflexes are /s/ in Ofo, /k/ in Čiwere, /k?/ in Osage, /hk/ in Hidatsa, and /k/ in Crow.

Following stress, *kx became /k?/ in Dakota and was metathesized to /xk/ in Biloxi; the Ofo reflex is /sk/. No material is available for *kx reflexes in the other languages.

*nakx^{ę} *to hear*: Bl. naxé Of. nasé Os. ánǫk?ǫ D. naxǫ́ M. na·kóxe C. nakǫ́ H. ahkúxic C. ikukú.

*ókxa *heron, crane*: Bl. oxká Of. óska D. hok?áto *blue heron*.

5.6.5. Cognates illustrating the reflexes of reconstructed *xt ~ *xVt and of *kk^{y} ~ k^{y}k are listed below.

*xtą ~ *xąt- *big, large*: Bl. tą *large* Of. itǫ́ *large, to grow* Tu. itąi Os. tǫ́ga OmP. tągá D. tąka W. xaté Č. xą́ñe (Iowa), xą́je (Oto) M. xté?ere H. ihtíac C. isá·, isá·te; cp. H. obsolete raxtapi *big*.

*kk^{y}á ~ *k^{y}ká *near, next*: Bl. įkčąhí Of. akčápi Tu. įkte·i ~ a·skai Os. áška OmP. ohiyaška D. aškádą *soon, near*, aškáka *soon, near* M. aská?aš Č. aski (?) W. aškenik (?).

6.0. Publications and manuscripts used in preparation of this paper are listed below, alphabetically by authors.

Anonymous: Biloxi, BAE-B 30 vol. 1.147–8 (1907); Crows, BAE-B 30 vol. 1.367–9 (1907); Dakota, BAE-B 30 vol. 1.376–80 (1907); Eno, BAE-B 30 vol. 1.425–6 (1907); Kansa BAE-B 30 vol. 1.653–6 (1907); Oto, BAE-B 30 vol. 2.164–6

(1910); Wahpeton, BAE-B 30 vol. 2.891–3 (1910).

J. B. Berry: The Missouri Indians, Southwestern Social Science Quarterly, 17.113–24 (1936).

F. Boas: Notes on the Ponca Grammar, 15th ICA vol. 2.317–37 (1906).

F. Boas and E. Deloria: Notes on the Dakota, Teton dialect, IJAL 7.97–121 (1933). Dakota Grammar, Memoirs of the National Academy of Sciences, vol. 23, mem. 2.1–183 (1939).

F. Boas and J. R. Swanton: Siouan. BAE-B 40 vol. 1.875–966 (1911).

E. Buechel: A Grammar of Lakota, St. Louis (1939).

A. F. Chamberlain: The Catawba Language, Toronto (1888).

E. Deloria: Dakota Texts. PAES 14.1–279 (1932); A study of Osage consonant shifts, Ms 104, Frans Boas Collection of American Linguistics, Library, APS.

J. O. Dorsey: On the comparative phonology of four Siouan languages, ARSI, 1881, p. 919–29; The Ɋegiha Language. CNAE 6. 1–783 (1890); Omaha and Ponca Letters, BAE-B 11.1–123 (1891); The Biloxi Indians of Louisiana, PAAAS 42.267–87 (1893); Kwapa Folklore, JAFL 8.130–1 (1895).

J. O. Dorsey and C. Thomas: Brulé, BAE-B 30 vol. 1.266–7 (1907); Iowa, BAE-B 30 vol. 1.612–14 (1907); Mandan, BAE-B 30 vol. 1.796–9 (1907); Mdewakanton, BAE-B 30 vol. 1.826–8 (1907); Missouri, BAE-B 30 vol. 1.911–12 (1907); Oglala, BAE-B 30 vol. 2.109–11 (1910); Omaha, BAE-B 30 vol. 2.119–21 (1910); Ponca, BAE-B 30 vol. 2.278–9 (1910).

J. O. Dorsey and P. Radin: Winnebago. BAE-B 30 vol. 2.958–61 (1910).

J. O. Dorsey and J. R. Swanton: A Dictionary of the Biloxi and Ofo Languages, BAE-B 47 (1912).

M. Eastman: Dakotah. New York (1849).

A. C. Fletcher: Phonetic Alphabet of the Winnebago Indians, HCPIT 4.51–9 (1854).

A. C. Fletcher and F. La Flesche: The Omaha Tribe, Ann. Rep. BAE 27.17–654 (1906).

L. J. Frachtenberg: Contributions to a Tutelo Vocabulary, AA 15.477–9 (1913).

H. G. C. von der Gabelentz: Grammatik der Dakota-Sprache, Leipzig (1852).

A. S. Gatschet: Grammatic Sketch of the Catawba Language, AA ns. 2.527–49 (1900).

H. Hale: The Tutelo Tribe and Language, PAPS 21.1–45 (1883).

W. Hamilton: Remarks on the Iowa Language, HCPIT 4.397–406 (1854).

W. Hamilton and S. M. Irvin: An Iowa Grammar (1848).

F. V. Hayden: Brief Notes on the Pawnee, Winnebago and Omaha Languages, PAPS 10.406–11 (1868); Contributions to the Ethnography and Philology of the Indian tribes of the Missouri Valley, TAPS ns. 12.420–426 (1863).

N. M. Holmer: An Ofo Phonetic Law, IJAL 13.1–8 (1947); Sonant-Surds in Omaha-Ponca, IJAL 11.75–85 (1945).

E. Kennard: Mandan Grammar. IJAL 9. 1–43 (1936); Mandan Folkloristic Texts, Ms 317, Frans Boas Coll. of American Linguistics, APS.

F. La Flesche: Omaha and Osage Traditions of Separation, 19th ICA 459–62 (1915); A Dictionary of the Osage Language, BAE-B 109 (1932); Ethnology of the Osage Indians, SMC 76. 10.104–7 (1924).

W. Lipkind: Winnebago Grammar, New York(1945).

R. H. Lowie: The Assiniboine, APAM 4.1–270 (1910); A Crow Text, UCP 29.155–75 (1930); The Crow Indians, New York (1935); Hidasta Texts, PRS 1.173–239(1939); The Crow Language, UCPAAE 39.1–142 (1941).

W. Matthews: Grammar and Dictionary of the Language of the Hidatsa, New York (1873–4); Ethnography and Philology of the Hidatsa Indians, US. Geological and Geographical Survey, Misc. Publ. 7.1–239 (1877).

W. J. McGee: The Siouan Indians, Ann Rep. BAE 15.157–204 (1894).

J. Mooney: Catawba, BAE-B 30 vol. 1. 213–16 (1907); Cheraw, BAE-B 30 vol. 1.244–5 (1907); Hidatsa, BAE-B 30 vol. 1.547–9 (1907); The Siouan Tribes of the East, BAE-B 22.5–101 (1894).

J. Mooney and C. Thomas: Assiniboin, BAE-B 30 vol. 1.102–5 (1907).

G. P. Morehouse: History of the Kansa or Kaw Indians, TKSHS 10.327–68 (1908).

P. Radin: Winnebago, In "Siouan" BAE-B 40 vol. 1.875–966 (1911); The Winnebago Tribe, Ann. Rep. BAE 37.–550 (1916); The Culture of the Winnebago: As Described by Themselves, IUPAL (1949).

S. R. Riggs: Grammar and Dictionary of the Dakota Language, SCK 4. 1–338 (1852); The Dakota Language, CMHS 1.89–107 (1872); A Dakota-English Dictionary, CNAE 7.1–665 (1980); Dakota Grammar, Texts and Ethnography, CNAE 11 (1893).

F. L. O. Roehrig: On the Language of the Dakota or Sioux Indians, ARSI 1871, 434–50.

E. Sapir: A Tutelo Vocabulary, AA ns. 15.295–97 (1913).

T. A. Sebeok: Two Winnebago Texts, IJAL 13.167–70 (1947).

F. T. Siebert, Jr.: Linguistic Classification of Catawba, IJAL 11.100–104; 211–18 (1945).

A. Skinner: Ethnology of the Ioway Indians, BPMCM 5.181–354 (1926).

F. G. Speck: Some Catawba Texts and Folklore, JAFL 26.319–30 (1913); Recording the Catawba Language, El Palacio 24.307–8 (1928); Catawba Texts, CUCA 24.1–91 (1934); Siouan Tribes of the Carolinas, AA ns. 37.201–25 (1935); Catawba Text. IJAL 12.64–5 (1946).

J. Spencer: The Kaw or Kansa Indians, TKSHS 10.373–82 (1908).

R. H. Stetson: An Experimentalist's View of Hidatsa Phonology, IJAL 12.136–8 (1946).

A. Susman: The Accentual System of Winnebago, New York (1943); Catawba Lexicon, Ms 344, Franz Boas Collection of American Linguistics, APS Library.

S. R. Swanton: Osage, BAE-B 30 vol. 2. 156–8 (1910); New Light on the Early History of the Siouan Peoples, JWAS 13.33–43 (1923); Early History of the Eastern Siouan Tribes, Essays in Anthropology presented to A. L. Kroeber, pp. 371–81. Berkeley (1936); Siouan Tribes and the Ohio Valley, AA 45.49–66 (1943).

C. Thomas: Quapaw, BAE-B 30 vol. 2. 333–6 (1910); Teton, BAE-B 30 vol. 2. 736–7 (1910); Yankton, BAE-B 30 vol. 2. 988–90 (1910); Yanktonai, BAE-B 30 vol. 2.990–1 (1910).

C. F. Voegelin: Ofo-Biloxi Sound Correspondences, PIAS 48.23–6 (1939); Internal Relationships of the Siouan Languages, AA 43.246–49 (1941); Historical Results of Crow-Hidatsa Comparisons according to Three Methods, PIAS 50.39–42 (1941); A problem in morpheme alternants and their distribution, Lg. 23.245–54 (1947).

Maximilian zu Wied-Neuwie: Reise in das Innere Nord-amerikas, 2 vols. Coblenz (1839-1841).

G. F. Will and H. J. Spinden: The Mandans, PMP 3.81–219 (1906).

J. P. Williamson: An English-Dakota Dictionary, New York (1902).

W. Whitman: The Oto, CUCA 28.1–132 (1937); Origin Legends of the Oto, JAFL 51.173–205 (1938); Descriptive Grammar of Ioway-Oto, IJAL 13.233–48 (1947).

WICHITA I: PHONEMICS[1]

PAUL L. GARVIN
UNIVERSITY OF OKLAHOMA

1. List and table of phonemes
2. Prosodic features
3.1. Vowel description
3.2. Consonant description
4.1. Vowel clusters

1. The Wichita phoneme pattern includes 4 vowels and 9 consonants, which in addition to alternating sequence are found in a limited number of clusters. Vowels are further differentiated by the prosodic features of stress and quantity.

The vowels are low back a, a·, low front ɛ, ɛ·, high back u, u·, and high front i, i·.

The consonants include two symmetrical series of stops and continuants, and not in symmetry, a sibilant s with corresponding affricatec, and a glottal stop ʔ. Symmetrical stops are labiovelar kʷ, dento-alveolar t, and velar k; symmetrical continuants are bilabial w, dento-alveolar r̃, and pharyngeal h.

Wichita phonemes can be arranged in tabular form as follows:

Vowels	i	u		
	ɛ	a		
Consonants	kʷ	t	k	ʔ
		c		
		s		
	w	r̃	h	

2. Stress and quantity, though not always stable, serve to differentiate a number of minimum pairs. Pairs for quantity appear to be more frequent than pairs for stress: wic *two*—wi·c *man*, kɛ́ʔɛs *pumpkin*—kɛ́ʔɛ·s *onion*, hic *night*—hi·c *snake*; titɛʔɛ́·cʔ *he is a thief*—títɛʔɛ·cʔ *they are thieves* was the only minimum pair found for stress, but was volunteered very emphatically. Likewise, variable stress was encountered more often than variable quantity: tácʔiřik ~ tacʔířik *I'm crying*, tácʔakʔi·řis ~ tacʔakʔí·řis *I'm counting*, řaʔà·skhíc ~ řaʔá·skhic *blue*. Most of this variation was obtained, however, in soliciting isolated forms and may be due to contrastive stress at dictation speed. Variable quantity, on the other hand, was found under rather well-defined environmental conditions—V ~ V· as first member of vowel clusters, i ~ i· in final syllable, also short vowel lengthened (but *not* long vowel shortened) before glottal stop. tɛʔɛ·ciá·hkʷi [tɛʔè·ceá·hkʷï ~ tɛʔè·ce·á·hkʷï] *elm tree*, wúata·r̃ [wóata·R ~ wó·ata·R] *August*; àcsasʔa·kíʔis ~ àcsasʔa··kíʔi·s *he was lucky*, wu·říʔihɛc [wo·říʔihɛc ~ wo·rí·ʔihɛc] *Gracemont (Caddo Co.)*, u·háʔas [o·háʔas ~ o·há·ʔas] *people*. In a few residual examples quantity varies in an undefinable environment, but may there be a case of slight differences in morphemic composition or age dialect, since alternate forms were recorded from different in-

[1] Field work for this paper was conducted at Anadarko, Okla., during the year 1949, under the auspices of the Department of Anthropology of the University of Oklahoma. Some preliminary material and analysis by Ruth C. Whitford Wood was utilized in the initial stages of this research, and is hereby gratefully acknowledged. The tribe, at present numbering about 500 people many of whom still speak Wichita, now lives in Caddo County, Oklahoma. John Haddon has been the primary source of my information, but a number of other Wichitas have frequently been consulted as well, among them Cora West and George Standing. To all of these go my thanks for their patience and cooperation.

Wichita shows certain marked, though apparently sub-phonemic, differences in the phoneme pattern of speakers of different ages. In this paper, the speech of the average middle-aged Wichita is described. Forms of the oldest speakers will be discussed in a later study of Wichita age dialects.

formants: kɛhářthiř ~ kɛ·hářthiř *tomorrow*, sù·hahi·cá?a ~ sù·ha·hi·cá?a *let it be for now*.

In the majority of forms recorded, however, stress and quantity are both stable and independent of position as well as of each other. In a sample of 477 words, selected on the basis of other criteria, stress fixed in any position, as well as any random combination of different quantities were found. Many of these combinations, especially in longer sequences, were unique: kiřcɛřiè·?iskatawá·ckski *those who have not yet voted*, iátařiwi·řhɛ?ɛs *they all get together*, àcs?i·wukhářř?ia·s *it makes him feel good* řɛ·říkikicskìřis?lh *last year*.

Stress contours[2] in Wichita consist of one or two full words, most often polysyllabic, or of a full word with preceding particle: khařa?è·skiři?ákichis *she was busy*, ì·kɛ?ɛkiwù·řˆřiè·sɛřɛ?é·ř?i *he - asked - (him) the-child*, ɛ·kʷˆkà·si·kà·ki?ikú·sak?as *or sometimes-they-make-some-foolish-remark*. Contour formation is rather variable, however, and words are clearly separable. Hence, the word and not the contour will be considered the matrix of phoneme distribution.

Polysyllabic words carry a primary stress and may, in addition, have one or more secondary stresses. Primary stress is phonemic. Secondary stresses are often automatic on every second syllable in either direction from primary stress and are then not marked; if they occur in other positions, they are marked: řařisís [nȧrisís] *yellow*; ìařhachàki?ihá·s?ařì [èɑrhɑchȧki?ehá·s?ɑrì] *when there were many people*. When two polysyllabics fuse into a single contour, secondary stress replaces primary stress on one of them, other stresses remaining the same: řakskitakíři *Oklahoma City* (*lit.: Grove on the Hill*) + řakì·ckhá·ř?i· *town* = řakskitakìřˆřakì·ckhá·r?i· *town of Oklahoma City*. Morphophonemic changes at word boundary within contours, such as the above elision of final i, parallel changes at morpheme boundary within words.

Quantity occurs with all four vowels and in addition serves to determine some variation in vowel quality. In the sections discussing individual phonemes and their distributions short and long vowels will be treated separately.

3.1. All vowels, short and long, show a sizeable amount of free and positional variation within a contiguous range of quality. In addition to occurrence in clusters, all long vowels, as well as short a and i, occur in word-initial, medial, and final positions; short ɛ and u occur in word-medial and final positions only.

a has variants with various slight degrees of rounding [ɑ] in all positions; before ř followed by consonant (including geminate řř) unrounded variants [a] are found as well: as? [ɑ́s?V̌] *foot*; acsářř [ɑcsánn ~ ɑcsánn] *good*, hářthiřis [hɑ́nthiris ~ hánthiris] *day*. In addition, after kʷ and w rounded variants can be slightly raised to [ɔ]: ia·citákʷařciř?is [eȧ·cit'kʷɔncír?is] *they have a race*, wasá· [wɔsɑ́·] *cottonwood*.

The variant distribution of a· parallels that of a: á·ku·k? [ɑ́·ko·k?V̌] *he said*; wa·kickhá·řchuw [wɔ̀·kickhɑ́·nchoW ~ wɔ̀·kickhá·nchoW] *Medicine Bluff*.

ɛ has unrounded variants [ɛ] in all positions; it may in addition have slightly rounded variants [ɛ̈] after k: ta·wé?ɛs? [tɑ·wɛ́?ɛs?V̌] *his dog*; kɛhářthiř [kʸɛhánthir ~ kʸɛ̈hánthir] *tomorrow*.

ɛ· has unrounded mid variants [ɛ·] in all positions; it may in addition have slightly lowered variants [æ]· in final position: ɛ·kʷ [ɛ·kW] *maybe*; é·ciɛ· [é·ciᵻɛ· ~ é·ciᵻæ·] *mother*.

u has lowered variants [o] after kʷ, w, and before a, a·, w; raised variants [u] before i; both types of variants in all other positions: ti·ckʷukhářhi·? [tè·ckʷokhárhe·?V̌] *it is difficult*, wúsɛ?ɛkhà·ř? [wósɛ?ɛkhȧ·r?V̌] *wolf*, wúata·ř [wóɑtɑ·R] *August*, tí·řiwua· [té·riwɔ̀ɑ·] *then*; tì·stúicaks [tè·stúʷicɑks

[2] See Paul L. Garvin, Kutenai I: Phonemics, IJAL 14.37 (1948).

woodpecker; ti·sahúki· [tè·sɑhúke· ~ tè·sɑhóke·] *this is.*

u· has raised variants [u·] before ʔ and in monosyllables; in the latter, it may also have centralized variants [ω·]; in other positions, lowered variants [o·] are found: hú·ʔusk^{w}u [hú·ʔusk^{w}o] *this time*; ku·s [ku·s ~ kω·s] *eagle*; kú·kis [kó·kis] *rabbit.*

i has three ranges of variants: high front [i], high centralized [ĭ], slightly lowered [e]. [i] only is found adjacent to w, r̆, and after k; [i] and [ĭ] vary freely adjacent to ʔ not in cluster; [ĭ] and [e] vary freely after k^{w}; [i] and [e] vary freely in all other positions: wic [wic] *two*, r̆iwi·c [ríwi·c] *skunk*, kickhár̆ric? [k^{y}ickhánnic?V̂] *hot water*; har̆tar̆í?i?acì?i [hɑntɑrí?i?ɑcì?ĭ ~ hɑntɑrí?i?ɑcì?i] *my sister*; tɛ?ɛ·ciá·hk^{w}i [tɛ?è·ce!áhk^{w}ĭ ~ tɛ?è·ce!áhk^{w}e] *elm tree*; icháskha [ichɑ́skhɑ ~ echɑ́skhɑ] *dancing ground.*

i· has a raised variant [i·] after k^{w}, w, slightly lowered variants [e·] in all other positions: r̆ɛ?ɛ·k^{w}í·c [nè?ɛ·k^{w}í·c] *rooster*, wi·c [wi·c] *man*; assí·ha [ɑssé·hɑ] *all of them.*

3.2. Consonants show a lesser range of free variation, but have a higher degree of positional variation under relatively well-defined conditions. Symmetric stops, including the stop articulation of the labiovelar, and the sibilant and affricate, are voiceless throughout, symmetric continuants are voiced in initial and intervocalic, optionally voiceless in final, positions; examples will appear below.

Of the consonants, ʔ has limited distribution: in addition to occurrence as final member of clusters, ʔ occurs in intervocalic and final positions only. Other consonants occur in clusters, and also in initial, intervocalic, and final positions.

Labiovelar k^{w} consists of a velar closure, coarticulated with, or followed by, a labial release. The latter is voiced in prevocalic position, voiceless in word-final and before voiceless consonant: kak^{w}é·ri [kɑk^{w}é·ri]-*Mexican*; a·khir̆cúisk^{w} [ɑ·khincú^{w}isk^{w}] *he arrived there*, r̆è?ɛtè?ɛk^{w}ukhár̆ik^{w}s [nè·'tè?'k^{w}okhárikWs] *"Laughing Village".*[3]

Dento-alveolar t is marked by prolonged closure—reminiscent of geminate articulation—in intervocalic position after short vowel, less prolonged closure in other positions: kític? [k^{y}ít·ic?V̂] *neck*; tá·ta [tɑ́·tɑ] *father*, kickhár̆ik^{w}itàt [k^{y}ickhárik^{w}ĭt·ɑ̀t] *"Village with a Lid on".*[3]

Velar k is slightly palatalized before high vowel and in word-final, non-palatalized elsewhere: kɛtá·c?ar̆ [k^{y}ɛt·ɑ́·c?ɑR] *I shall gamble*, r̆ar̆ɛ?ékitak [nɑrɛ?ék^{y}it·ɑk^{y} *"Village on Backbone of Hill";*[3] ku·s [ku·s ~ kω·s] *eagle.*

Labial w is voiced in initial and intervocalic position, optionally devoiced in final position, and always voiceless before voiceless consonant: wúsɛ?ɛk? [wósɛ?èk?V̂ *dog*, cɛ·wɛ́· [ce·wɛ́·] *always*, kiú·hwic [ki!ó·hwic] *seven*; kéta·w [k^{y}ɛ́tɑ·w ~ k^{y}ɛ́tɑ·W] *eight*, tà·wticɛr̆é·s? [tà·Wticɛré·s?V̂] *thir-(teen).*

Dento-alveolar r̆ is characteristically a single, lenis flap, nasalized in initial position, in gemination, and before homorganic stop or affricate, non-nasalized elsewhere; it is optionally voiceless and sometimes slightly frictionalized in final position: r̆é?ɛ· [né?æ·] *chicken*, kir̆r̆ɛ·sa·khír̆?ih [k^{y}in-nè·sɑ·khír̆?ĭh] *Monday*, har̆tí·hackir̆c [hɑntɛ́·hɑck^{y}ĭnc] *this many of us*; kɛhár̆thir̆ [k^{y}ɛ̄hɑ́n-thir ~ k^{y}ɛ̄hɑ́nthiR ~ k^{y}ɛ̄hɑ́nthiR̆] *tomorrow.*

Pharyngeal h occurs primarily in initial and medial positions, in final position it was found less frequently; it is a voiced breath in initial and intervocalic positions, voiceless in final and adjacent to stops: hi·hár̆thir̆i [hɛ·hɑ́ntHiri] *tomorrow*, r̆ac?isk?-ík?ih [nɑc'isk'ík'ĭH] *my hands*, wa·khác [wɔ·kHɑ́c] *cow*, kátatha·r̆? [kɑ́tɑtHɑ·r?V̂] *door*, ka·hkíɛ? [kɑ·Hkí!ɛ?V̂] *quail.*

Sibilant s is voiceless fortis in initial and medial position; in final position after short

[3] Place names in quotes refer to former Wichita villages the sites of which are not now occupied by local settlements.

vowel it is characteristically reinforced to approach gemination; in final position after long vowel, on the other hand, it often approaches lenition, even partial voicing: sic [sic^{e}] *grapes*, wasá·sa·kˀ [wɔsɑ́·sɑ·kˀV̊] *wood of the cottonwood tree*; cíˀas [cíˀɑs·] *one*, iskɪ̄ɾiɛˀwá·s [iskʸɪ̀ɾiɨɛˀwɔ́·s ~ iskʸɪ̀ɾiɨɛˀwɔ́·s ~ iskʸɪ̀ɾiɨɛˀwɔ́·sᵉ] *ten*.

Affricate c is voiceless fortis in all positions; in addition, it is slightly retroflexed before h, and the sibilant release is often prolonged in final position after short vowel: ciɾˀ [cíɾˀV̊] *light, flame*, tatá·cˀaɾis [tɑt·ɑ́·c'ɑ́ɾìs·] *I gamble*; hic [hic^{e}] *night*, chɛ·c [ɕhɛ·c] *dawn*.

Glottal stop ˀ is a voiced vocalic interruption in intervocalic position, and the following vowel may then be weakened; it is a slight voiced glottal closure and release between consonant and vowel, sometimes coarticulated with the stop or affricate; and a voiceless glottal closure with potentially strong voiced or voiceless breath release in final position, the latter increasing with distinctness of articulation: ɾ̄i·ˀisiˀɾaɾik [nè·'isi'éɑɾikʸ] *Rush Springs (Caddo Co.)*; wá·cˀa·ɾ̄ˀ [wɔ́·cˀɑ·ɾˀV̊ ~ wɔ́·c'ɑ·ɾˀV̊] *squirrel* kiɾ̄isˀáɾ̄ [kʸɪ̀ɾisˀɑ́ɾ] *year*; hiɾ̄ˀí·ˀ [hirˀé·ˀv̊ ~ hirˀé·ˀv̊] *for some time*.

4.1. Vowel clusters consist of two vowels, either or none of which may be stressed. Most clusters consist of a high vowel, most often i, followed by a low vowel; the first vowel of such a cluster is of variable quantity, and before a, of slightly lowered quality: [eⁱa ~ e·ⁱa], [oa ~ o·a]. i is in all clusters linked to the following vowel by a short y-glide: [eⁱa], [iⁱɛ], [iⁱo·]. u is in clusters linked to i by a short w-glide: [uʷi]. ɛ is in clusters linked to a by a short y-glide: [ɛⁱa], [ɛⁱa·].

The clusters ia, ia·, iɛ· were found in initial, medial, and final positions: iátaɾ̄iwɪ̀·ɾ̄hɛ·s *they start coming in*, cíaɾˀi·ks *little girl*, hi·wútia *that is ...*; ia·citakʷaɾ̄ciɾˀis *they have a race*, tía·cˀ *hair*, hawúˀia· *then*; iè·skatawá·cks *they mark their places*, wuˀiɛ́·wicksta*ˀ*as *they stopped coming*, kicáɾ̄iɛ· *prairie dog*.

The cluster iu· was found in medial and final position: kiú·hwic *seven*, wíu· *cat*.

The clusters ɛa, ɛa·, ui were found in medial position only: ɾ̄ɛáɾ̄ɾ̄ *lion*, ɾ̄àɾ̄ɛˀɛá·ˀi *his child*, kà·kiɾ̄iˀuickaˀas *he doesn't know*.

Finally the, clusters ua and ua· were found only after w, the former in medial, the latter in final position: wúata·ɾ̄ *August*, tí·ɾ̄iwua· *then*.

4.2. Wichita has three geminate consonant clusters: ɾ̄ɾ̄, ss, cc. Of these, ɾ̄ɾ̄ occurs in medial and final positions, ss and cc in medial position only: ka·kiɾ̄iku·kháɾ̄ɾ̄iski *no idea of what was going on*, acsáɾ̄ɾ̄ *good*; ɾ̄iɾ̄hé·ssa·khiɾ̄ˀ *Thursday*; ɾ̄iˀa·wíccɛ·ˀɛɾ̄ìw *shawl*.

Non-geminate clusters may consist of two, three, or four consonants. According to distribution in these clusters, Wichita consonants can be divided into two groups: group I including symmetric stops, group II including symmetric continuants and sibilant s. The remaining two consonants ˀ and c function as members of group I when adjacent to s, as members of group II in other clusters.

Two-consonant clusters may consist of two consonants of group II, or of a consonant of group I preceded or followed by a consonant of group II.

Three-consonant clusters are of three types: they may have ɾ̄ as initial member and then contain as many as two more consonants of group II; they may consist of geminate ɾ̄ɾ̄ or ss followed by one more consonant; or finally, they may contain consonants of group I and group II in alternating order.

Four-consonant clusters contain consonants of groups I and II in alternating order, with s or c as the first member.

The following listing of clusters can not be considered definitive before a rather complete statement of the morphology; possible additions to the list are, however,

expected to fall into the types defined above. Consonants of group I (including ʔ and c functioning as members of this group) will be abbreviated C_I, consonants of group II (including ʔ and c functioning as members of this group), C_{II}.[4]

Two-consonant clusters are found in initial, medial, and final positions, as detailed below.

$C_{II}C_{II}$ clusters are the following.

wʔ found in medial position: kawʔá·cʔ *green.*

řh found in medial position: ře·řhiřʔ *buffalo bull.*

řc found in medial and final positions: hařcitiá·cʔiki *our hair*, tí·hackiřc *this many.*

řʔ found in medial and final positions: cíařʔi·ks *little girl*, wi·řʔ *arm.*

hw found in medial position: kiú·hwic *seven.*

ch found in initial and medial positions: che·c *dawn*, ichiřisé·ckɛʔɛkʔ *redbird.*

cʔ found in medial and final positions: wá·cʔa·řʔ *squirrel*, tá·tasiwà·cʔ *father's older brother.*

C_IC_{II} clusters are the following.

kʷh found in initial and medial positions. Phonetically, the labial release follows the h: kʷha·c [kHʷɔ·c] *red*, řé·kʷhac [né·kHʷɔc] *meadow lark.*

kʷs found in final position: řè·ʔɛtè·ʔ-ɛkʷukháříkʷs *"Laughing Village".*[3]

th found in initial and medial positions: thařři·sa·khísa *almost sundown*, řackhathí·ki *Wednesday.*

kh found in initial and medial positions: khac *white*, taciʔí·khiʔi·taw *I know.*

ks found in initial and final positions: ksi·ckáta·hicʔ *bow*, ti·stúicaks *woodpecker.*

kʔ found in initial, medial, and final positions: kʔíta·ks *coyote*, ſakʔi·řis *they count them*, á·ku·kʔ *said.*

cs found in medial position: àcsasa·kháski *Friday.*

[4] Cf. Paul L. Garvin, Kutenai I: Phonemics, IJAL 14.39–40 (1948).

$C_{II}C_I$ clusters are the following.

wt found in medial position: tà·wticeřé·sʔ *thir(teen).*

řt found in medial position: hařtaříʔiʔacìʔi *my sister.*

hkʷ found in medial position: tɛʔècařikicá·hkʷi *little elm tree.*

hk found in medial position: ka·hkíɛʔ *quail.*

skʷ found in medial and final positions: iskʷí·c *five*, kɛtá·cʔařiskʷ *I'm on my way to gamble.*

st found in medial position: istá·hiʔ *white man.*

sk found in medial position: ié·skatawà·cks *they mark their places.*

sʔ found in medial and final positions: té·sʔicka· *squaw corn*, ka·sʔ *leg.*

ckʷ found in medial position: ti·ckʷukhářhi·ʔ *it is difficult.*

ct found in medial position: aʔa·kicta·řaskíthařɛ· *he painted his horse.*

ck found in medial and final positions kíckařa·s *cold water*,ařàtia·kúkack *he cut his hair.*

Three-consonant clusters are found in medial and final positions, as detailed below.

Three-consonant clusters with initial ř are found in medial position: řth—asʔířthias *blackberry*; řch-wa·kickhá·řchuw *Medicine Bluff*; řcʔ-hařcʔakʔú·s *alfalfa*; řckʷ-ařckʷú·ř *I told them.*

Three-consonant clusters of the type geminate + other consonant are found in medial position: řřh — wichařì·ciřřhé·ski *on its second day*; řřʔ — ácsʔi·wukhařřʔia·s *it makes him feel good*; řřw — hawaʔu·khářřwachis *they start all over again*; ssk — ciʔasskínti·ʔ *nine.*

$C_IC_{II}C_I$ cluster ksk is found in medial position: isà·kskithiřʔá·his *when it is early noon.*

$C_{II}C_IC_{II}$ clusters are the following.

skʷh (phonetically [skHʷ])found in medial position: ihà·skʷhá·c [ehà·skHʷɔ́·c] *Indian.*

sth found in medial position: aʔà·kihkihářřisthiř *he painted himself all up.*

skʔ found in medial and final positions: řacʔiskʔíh *my hand*, iskʔ *hand.*

skh found in medial position: icháskha *dancing ground.*

sks found in final position: hl·ʔià·cʔ-iskatakísks *that's the way they vote.*

sch found in medial position: kʔl·schakia·-sʔá·kiʔ *he was a young man.*

cth found in medial position: hé·cthias *fire ceremony.*

ckh found in medial position: kakick-hářik *Irish potatoes.*

cks found in medial and final positions: asti·cksiá·cʔ *peanut,* iskatawá·cks *elections.*

csʔ found in medial position: àcsʔi·-wukhářřia·s *it makes him feel good.*

csk found in medial position: ta·kícskiřisʔ-ařʔi·s *four years.*

Four-consonant clusters occur in medial position. They are of the type $C_{II}C_IC_{II}C_I$: sksk^w — kha·ki·sksk^{w}íři *newspapers*; sksk — ciʔatí·skskiři *it is very plain*; ckst — wuʔié·wicksta*ʔ*as *they stop coming*; cksk — kiřcɛřiè·ʔiskatawá·ckski *those that have not yet voted*; cksʔ — iè·skatawá·cksʔas *they vote.*

MAIDU MACROPHONEMES

W. D. PRESTON
PHILADELPHIA

0. Prolegomena
1.1 Dixon's phonetics
1.2 Uldall's phonetics
2.1 NE phone sequences
2.2 NE allophones
3.1 S phone sequences
3.2 S allophones
4.1 Non-occurrent two consonant sequences
4.2 Maidu NE ≅ S macrophonemes
5.1 Corpus of loanwords
5.2 Corpus of exclamations
5.3 Corpus of onomatopoeia

0.1. Southern (S) and Northeastern (NE) Maidu dialects are treated.[1] Data S are from H. J. Uldall, (Southern Maidu Texts) and (Southern Maidu Grammar), two MSS in the Library of the American Philosophical Society, nos. 299,300 in Voegelin and Harris's Index to the Franz Boas Collection of Materials for American Linguistics (Lg. Mon. 22).[2] Data NE are from R. B. Dixon, Maidu (BAE-B 40:1) and Maidu Texts (AES-P 4). Uldall follows IPA conventions in his phonetics; his analysis of phone categories is phonemic. Dixon follows Americanist conventions; his analysis is phonetic. Field transcriptions underlying the phonemic data of S, unless the latter represent phonemic recording, are not considered and have not been available. The data of NE are field transcriptions. Thus, for the present combined phonemic (macrophonemic) analysis the phonetic data of NE have been mainly correlated with the phonemic resultants of S. This was particularly expedient, because of the lack of consistent phone distinction (esp. relative to glottalized [fortis] consonants and central vowels) and because of the amount of free variation, in the NE data. The combined phonemic statement was made in the presence of morphemic analysis (cf. **1.2** fn. 5, the only statement on stress made in this paper). But the phonemic constituency of S morphemes was not correlated with that of similar NE morphemes; NE sequences (clusters, 2.1) reflect solely Dixon's distinctions.

0.2. Phonemic statements are configurational, technique-resultant. Data occur as data types, by technique-resultancy. In this instance, configurations are stated with a function of data type control, i.e. technical origin of data influences configuration techniques.[3] Macrophonemes comprise coordinate allophonic sets (~ phonemes), each set extracted from a different dialect or language.[4] Treatment is phonetic and Dixon's and Uldall's transcriptions are followed, until **4.2, 2.1, 3.1** are not based

[1] I have no appreciable data for NW, a third principal dialect.

[2] My thanks are due to the American Philosophical Society for funds in support of my Maidu work, and to the Librarian of the American Philosophical Society, W. E. Lingelbach, for his valuable assistance in making the Uldall MSS available to me.

[3] Configurations and configuration sets. Configurations are absolute by technique definition; sets are juxtaposed configurations, juxtaposed by stated similarity or dissimilarity criteria. Sets may be labelled relativity sets if any constituent configuration be taken as a fact (= true, a reality projection) statement; if not, they are clusters of absolute units, each unit defined by technique and each set established by technique. Thus Einstein's preparation of alternant or similarity/dissimilarity sets of acceleration configurations (The Meaning of Relativity, 3rd ed., Princeton, 1950, p. 57ff.): constituent configurations here also are absolute and technique-resultant, unless any single constituent be taken as fact.

[4] ± a limiting principle of genetic relationship, thus macrophonemes for Maidu dialects, for Semitic languages, but not for Hungarian + Basque.

on syllable definition. **2.2, 3.2** illustrate certain allophones, with free variant counterparts when available (in parentheses). Quasi V sequences are stated mainly as /Vy∼w/ by Uldall, as V phones by Dixon ∴ non-occurrent V sequences are not included in **4.1.** In **4.2** ∼ → phonemic alternation = alternation by complementary distribution or by free variation. The nature of specific alternations may be checked against 1.1,2,2.2,3.2. ≅ → macrophonemic coordination = the coordination of allophonic sets (∼ phonemes) which composes a macrophoneme. An allophonic set may be stated as a phoneme or as a macrophonemic coordinate (which may be stated as a phoneme). In 4.2 ( ) → environmental variation of undefined nature (see 1.1,2 for definitions).

1.1. Dixon's phonetics. d alveolar sonant, t alveolar surd, t! alveolar fortis, ᴅ alveolar inspirant, n alveolar nasal, b labial sonant, p labial surd, p! labial fortis, ʙ labial inspirant, m labial nasal, g palatal sonant, k palatal surd, k! palatal fortis, x palatal spirant, ñ palatal nasal, ts dento-alveolar surd, s dento-alveolar spirant, c dento-alveolar spirant, l lateral sonant, ' glottal catch, sonant, h, y, w. ʙ and ᴅ occur only as a rule before ö, the difference between them and b and d is sometimes slight, sometimes strongly marked. Fortis is often not strongly marked, difficult to separate from surd. Glottal catch occurs little. In ʙ and ᴅ, inspiration proceeds no further than the soft palate, quality of the sound is produced by a "smack" formed by a slight vacuum in the mouth. i, ī, e, ē ᴇ, ă, å, ü, ö, u, ū, o, ō, a, ā. x and ñ non-initial. Initial two consonant clusters do not occur. Medial clusters of more than two consonants do not occur. In two consonant clusters sonants, except l, are never the first member. Clusters of two spirants, nasal and lateral or those in which x is the second or ts the initial member, are "avoided". Most frequent combinations: ld, lb, lt, lp, lk, lts, ls, kd, kb, kl, kt, kts, kp, ks, kn, km, td, tk, tp, tn, tm, pd, pb, pk, pt, pts, ps, pn, xb, xl, xk, xts, xp, sd, sb, sl, sk, sts, sn, sm, nd, nb, nk, nt, nts, np, ns, nm, md, mb, mt, mts, mp, ms, mn. (Dixon, Maidu 684-6, Maidu Texts 2-3.)

1.2. Uldall's phonetics. b bilabial implosive, p' bilabial glottalized plosive, p bilabial plosive, m bilabial nasal, w bilabial semivowel, d alveolar implosive, t' alveolar glottalized plosive, t alveolar plosive, n alveolar nasal, l aveolar lateral, s alveolar fricative, tʃ' palato-alveolar glottalized affricate, y palatal semivowel, k' velar glottalized plosive, k velar plosive, (w) velar semivowel, ' glottal plosive, h glottal fricative. Glottalized sounds not very strong, in unstressed position often replaced by unaspirated surds, not released before other glottalized sounds or plosives. Plosives are aspirated, in unstressed position often replaced by unaspirated plosives. "In order to determine whether an unaspirated plosive represents an ideal aspirated plosive or an ideal glottalized plosive it is therefore necessary to have the syllable repeated with stress on it, and since there are certain syllables which apparently can never be stressed, the ideal affiliations of some p's and t's and k's remain undetermined. . . ." Glottal stop occurs optionally in initial position before vowel and in final position after a vowel or a voiced continuant, when a final vowel is pronounced without a glottal stop it is always followed by a slight aspiration. Nasals are pronounced as in English. After back vowels, especially u a velarized l occurs. s is pronounced with the tip of the tongue up and is a trifle lower pitched than the most common English variety, being produced slightly further back. The semivowels are pronounced as in English, in initial position y is much more fricative before i than with other vowels. In the production of b and d the air passage is closed at two points, at the glottis and, for b, at the lips, for d by the tip of the

tongue pressing against the alveolar ridge. A minimum of air pressure is then created between the two stops, mainly by a downward movement of the larynx so that the air rushes into the mouth when the front stop is released. The glottal closure is not released until this implosion has taken place. A normal sonant stop is produced before the formation of the glottal closure and before the downward movement of the larynx, so that the minimum of air pressure in the mouth and pharynx is preceded by a maximum. i, ɛ, i, ɜ, u, ɔ, a, length. i unrounded, close front vowel, as English i in heat, when short and in an unstressed syllable replaced by a more open and somewhat retracted variety, perhaps slightly more close than English i in thin, also in a short stressed syllable when the vowel is followed or preceded by a nasal or labial consonant in the same syllable, after a w an even more retracted vowel occurs in short syllables, especially if the syllable is a closed one. i: is subject to the same influence as i but does not deviate as far. ɛ unrounded, half-open front vowel, about halfway between the English vowels in bed and bad, some fluctuation in quality according to surrounding sounds, a unrounded open vowel a little further front than English a in father, may be slightly rounded after w when short and unstressed. ɔ rounded half-open, back vowel, when short tends to a lower tongue position resulting in a vowel like English *a* in hot, likewise, when the vowel is nasalized under the influence of a nasal consonant, before and after w it is somewhat closer, more like o, especially when short. u rounded close back vowel, subject to same influences as other vowels. ɨ unrounded close central vowel, more open in a short unstressed syllable than when long and stressed, preceding w pulls it back and gives it a slight lip rounding. ɜ unrounded half-open central vowel, as the vowel in English bird as pronounced in the South of England, very open and without any trace of reflex r, subject to slight rounding under the influence of w, retracted in short syllables, especially when preceded by m, to sound near vowel of English muck. All vowels except ɨ tend to be nasalized after, and to some extent before, nasal consonants, especially m, nasalization generally accompanied by a lowering of the tongue. All vowels occur as first part of y diphthongs, all but u as first part of w diphthongs. In most cases glottal stop breaks a vowel cluster. All vowels and consonants appear initially, all but b, d, tʃ', and h occur as final sound in a syllable. Glottal stop often occurs between syllable-final voiced continuant l, m, n, y, w, and the following vowel. "Practically all the possible combinations of consonants occur i.e. examples can be found of nearly all the consonants immediately preceded by nearly all those which can be final in a syllable. Such lacunae as there are give the impression of being due to the incompleteness of the list compiled or to accident rather than to any euphonic law that would bar such composition. Examples of combinations not found are: -ltʃ'-, -kp'-, -tl-." "Joviality is expressed by an all-round opening of all the vowels." "An in-breathed ɨ: expresses (anticipation of) great delight coupled with a feeling of wickedness; mere delight without the wickedness only calls forth a short hah said on a high pitch." "No definite rule can be given as to the place of the stress in words and sentences, the best that can be done is to indicate tendencies. . . 'The wind bloweth where it listeth', and so does Maidu stress."[5] (Uldall, [Southern Maidu Grammar].)

2.1. NE phone sequences. C: hb yűhbőtsoia, hm bomôhmöhtimenâtsehas, hp ámböhböhpě, ht bomôhmöhtiyahâka, hw

[5] The data roughly suggest automatic morphemic stress: NE secondary stem morpheme (primary stem morpheme = prefix) or fixed first V: (± subsequent V:) in sequence; S final V or fixed (e.g.) 'ṭ'o, 'be, 'bo, 'en, 'omis, 'kani, 'as, 'wes, ná:n, mén.

hŏhwétsoia, hy wihyamákas, h'b kóh'bonom, h'm yŏh'mendadom, h'p yáh'patdoimŏni; xb ámbŏxbŏdom; ʰb yūʰbŏdom, ʰp yáʰpatdoiménpe, ʰt hunyéʰtodom, ʰy méʰyodoiñkanim, ʰ'l tóiʰ'laláinotsoia, ʰ't hunyéʰ'todom; ᵉl kodéᵉleémtodom, ᵉp yáᵉpatokítdom, ᵉt hesáᵉtem, ᵉy méᵉyodóidom; kb hesándükbĕmaat, kts yotot'tsiktsoia, kd wémtikdŏkbedom, kh yákhuböktsoia, kk ūyŭkkakitsoiam, kl láklakpem, km púkmapem, kn hubŏknotsoia, kp wémtikpe, ks betéksipweten, kt núktim, kw mákwonop, ky hémmakyo; lb tawálbostsoia, lts sóltsoia, ld sóldom, lh solhékitsoia, lk petílkitmenwet, ll tawállihapĕ, lm bálmakas, ln dáldalnowet, lp sólpem, ls wipólsipmádom, lt pikáltidom, lw sólwet; mb kódombeléudi, mts kódomtsandi, md yūlúmdawéoköam, mh bŏmhēlotodom, mk honwédomkökan, ml kúmlaidom, mm hesímmaat, mn kámnak, mp kumpiti, ms wödömsitodom, mt wemtikdökbedom, mw hŭsemweteodom, my yakúkimyamándi; nb hesánbeñ, nts hintsetőyetsoiam, ntj míntjem, nd homóndi, nh banhŏtanudom, nk aweténkan, nl hánlöksiptsoia, nm yamánmantom, nn ŏnnotsoia, np makítmenpem, ns minsŏm, nt hŏmŏnanteñ, nw wusútkinwet, ny tsenŭmenyakesi; ñk epíniñkoyŏdi; pb wŏsipbosmápem, pts wosíptset, pd wosípdom, pk tehŏhöpkoidom, pl kölŏplölöpdom, pm wosípmönikökán, pn wosípnodom, pp ösíppintsoia, ps tehŏhöpsitodom, pt éptim, pw luksípweten, py kŏpyetidom; sb tŏsbokitnobĕnĕĕ, sts méibostsoia, sd bŭsdom, sh büshŭkitmadom, sk yokóskitdom, sl pebósleuyaken, sm díbosmaáñkano, sn hésniwet, sp tsiwíspolotkömmáidüm, ss hassínotsoia, st éstodi, sw wiáswaitonatse, sy bŭsyahadom; tb okítbostiweten, tts mákittsŏitsoia, td pulótdom, tk áikakatkaá, tl hŏtlutpem, tm mákmakitmenkas, tn bok'otnándi, tp lútpekanim, ts opítsipdom, tt ettŭ, tw tsáitikatwéyepem, ty látyepem; t'ts yotót'tsiktsoia, t'd hat'dá; 'ts wŏ'tsoia, 'k wikú'kūdom, 'l hó'lammáidüm, 'p yá'patkoidom, 't mé'takitmadom, 'w wo'wowowowoweten, 'y mé'yodoitsoia; V: aa kawímmaat, aā áikakatkaá, ae ŏnŏmaenkes, ai tsáitsainom, ao kaomáñkano, aö koyŏwatátaönoköm, au ökáupintitsoia, aū kaŭsano, aaa sápwininimaaat, aai heyáwepáaikan, aia kaiáñkano, aiā kaiás, aie hadóipaiéñkanim, aii tsáiiñ, aiī tsaií, aio kaiokítekoitsoia, aiö káipaiötótodom, aiū kaiŭsan, aui kauím, aāai baáaidautsetkan; āa mamáañkano, āā māándükbem, āe hináetaköm, āi mayāiken, āo apáokitweten, āö pedáökoidom, āū hesāūsmendom, āaa mamáaañkano, āai apáaikan, āoi sohāoiwonokötsoia; ea hūbŏktitiweam, eā teáswaitoweten, ee tŏswoyeetan, ei yepéintimapem, eī peídidom, eo hŭsemweteodom, eō tseŏkoletdom, eö wéyeösíptsoia, eu tetébeutimákadĕ, eū peŭsan; ēa wéaka, ēe kawéenkes, ēē wēékan, ēĕ hēĕ, ēi bēi, ēī hēínopi, ēo héokitsoia, ēu beléudi, ēū hēúkinuméndom; ĕa makítĕano, ĕĕ wiáswaitopĕĕ; ia kámiapdam, iā wiáswaitonatse, ii amádiim, iī yálūlūdií, io hoiwiokítdom, iŏ ětsúktiŏweten, iö wŏnōtiŏyetsoiam, iu tsíulutsonokömmáidüm, iū tsiūlutsonokömmaidum, iai hóiwiaiga; īe helfenimmáidüm, īī wíímenmapem, īō sīöhékatsonodom, īu tíukim, īū kíūsusukitdom; oa ónkokoitoáñkano, oe yönóekan, oĕ tŏswoĕdom, oi kodóidimaat, oö héyetoönŏyedom, ou kát'otyousdom, oai wilŏlwoáitodom, oia yötsónotsoia, oio bödóionotsoia, oiŏ woiŏmenkömmaat, oiö oiŏpaidoñkan, oiū bŏsapkoiŭsmapem, oioi koióiki; oe pŏestotset, ōi t!ōiyí, ōo tsenŏokití, ōō wōōhánoyedom, ōu ílakitŏusan, ōū pōūtsonoñkoyŏköpem, ōai yōáitsoia, ōöö ōōölömdom, ōūi samōūitsan; öa tsehéluköañkas, öā söā'asdoiweten, öe wŏnōtiboskö́énkes, öĕ möĕti, öi áisöi, öī köídipedĕ, öo hŏokitmāpem, öō bŭstapöö, öu dökŏtöusitotsoia, oū möŭsim, öio böiótitsoia, öiö sököiönŏtsoia, ööi sööi, öiau söiáukitoweten; ua laptánuañkano, ui būkŭkuikitset, uö hóipaikinuösítotsoia, ūe büsökínūenkes, ūi tŭitsenodom; üi ŭitsaniñ.

2.2. NE allophones. C: [*b*] *b*ŏsasakitsoia (bŏsapkoiŭsmapem), *b*atí; [*d*] *d*ŭbapni, *d*ŭbatni, ne*d*íwet, ne*d*ítsoia, ne*d*íwonōköam;

[ɒ] nĕɒĭ, nĕɒĭdom, nĕɒĭmmaidü, nĕɒĭustsoia, neɒĭwēbissim, ɒŭpebönö; [g] hóiwiaiga, aigakatsoia (áikakatsoia); [ʰ] hunyéʰ'todom, hunyéʰtodom, yáʰpatdoiménpe (yáʼpatyetsoia), méʰyodoiñkanim, yūʰbŏdom (yŭh'bōdom), méʰyodoitsoia, tóiʰ'laláinotsoia; [x] ámböxbödom (ämböhböhpĕ); [ᵉ] yáᵉpatokítdom, kodéᵉleemtodom, nēyĕᵉ, méᵉyodóidom, hesäᵉtem (hesätidom); [ʼ] méʼtakitmadom, beké'tsonotsoia, wo'wowowowoweten, yáʼtsetipem, yéi'idíknoweten, tóiʰ'laláinotsoia, sikálamen', yōŏ'öskoitset, öpékake'nomäpem, oŏ'ölimtsoia, yŏh'mendamöni, wŏ'tsoia (wŏtsoia), bŏ'tsoia, hó'lammáidu'm, kóh'bonom, yūh'bŏwebüsim; [tj] míntjem (míntsem); [ñ] áñkaniñkan (ánkanim), holókoñ kaiyí. V: [â] pâ (po), páti, höbädi (höbódi), päküpem, yūʰbädom (yūʰbōdom), telálimmáidü (télolim), kädom (kódo), älokdinan, älokloknan, älolokna, älokloko (ólokloko, ólokokna), södákom, â, kátom (kótom), okálikas, sádoipaiiñkani; [ĕ] mĕweten, möĕtim (möétim), ĕpíniñkoyŏdi (epiniñkoyŏdi), tsĕtipedi (tsétipem), yŏmĕ, mintsĕ (míntse), pĕwónokötsoia, nēyĕᵉ, külĕtso (külétso), ödoinopĕ, makítĕano, bŭsĕbisiñkan, nĕnoki, ĕtsúktiŏweten, yĕpküpem, ökáupintipĕ, háptĕ (hápte), külĕ (külé), hénantĕ (hénante), wilĕdiknotsoia (wilédiknotsoia), tíktĕtĕsipíntset, külĕtsom, wĕh, káipĕwēbisset (kaipe), kĕlĕ, áitĕ (aité), hesändükbĕmaat, yakänupĕ, tetĕbĕ (tetébe), tetébeutimäkadĕ, wiäswaitopĕĕ, hŭhēyĕka, pĕnĕ (pĕne), hĕĕ, küléni (kúleni), tlĕdísdoidom, aménkömsĕ (aménkömse), hĕĕ (he'e), mökĕdeködom, ĕnnan, héntĕ (hénte), sôtibĕ, tsáitikapĕ, mĕiyĕ; [ɛ] mäwikɛn; [ô] önódom (önódom); [ŭ] tsŭmmi; [ŭ] máidüm, bŭsyahadom, bŭsdom, bŭstsoia (bístsoia), bĕidükmeni, küléni, hálbüsiñ, tŏñkütoki, süm (söm), sŭpa, sŭndaka, südadalínoweten, bókolebüsim (bŭsebisim), hínküpem, hüsköm, öpekandükbem (öpékandökbem, kaándukbe).

3.1. S phone sequences. C: dd widdúkdúkt'ɔmatɔy; kb hɛbíkbɛnɛ, kd bukdí, kh hikhul, kk bakka:lí, kk' bipikk'é:payitʃ'ɛ, kl lɛbáklɛbákt'ɔm, km bipikmént'ɔm, kn bukná, kp hɔnkapi:nu, ks bɛndóksípt'ɔmatɔy, kt hɛbiktín, kt' halɛdíkt'ɔm, kw ɛmp'illakwɔpitót'ɔm, ky maydikyahá; k'b p'ittʃ'ák'bɔnót'ɔmatɔy, k'd k'uysɔk'dí, k'k' da:k'k'é:paymént'ɔm, k'm bik'mám, k'n tʃ'á:tʃ'ak'awunúk'nuk'úm, k'p da:k'pém, k't bik'tí, k't' bík't'ɔm, k'w bɛnt'alák'wá, k'y hu:k'yán; lb butʃ'úlbɛnɛ, ld tʃ'ɔldí, lh bɔtʃ'ɔlhahát'ɔmatɔy, lk bɔkálkit, lk' payɛlk'ɔy, ll bɔlləmná, lm məlməlím, ln bakkalní, lp hɔndalpét'ɔm, lp' p'ilp'ilím, ls k'apílsipt'ɔm, lt alaltɛmám, lt' bɛnp'ólt'ɔm, lw hɛlwɛytóbɔ, ly payélyu; mb tʃ'iyimbó:m, mtʃ' hamá:mtʃ'ɛtɛ, md tʃ'úmdi, mh himhimím, mk lamkitín, mk' bɛydimk'é:pay, ml kilimlim, mm bammí:, mn tʃ'umná, mp ámpínt'ɔmatɔy, mp' ɛmp'ananakk'i:t't'ɔmatɔy, ms wɔ:msát'ɔmatɔy, mt əlámtɔtʃ'ɛy, mt' bɔk'ámt'ɔmatɔy, mw henímwɛsi, my wispilímlímyakkát'ɔm; nb bɔnnɔménbɛnɛ, ntʃ' bɛntʃ'adak', nd amaná:ndí, nh hanhaní, nk bɔnpínkɛ:m, nk' bɛnk'ə, nl lɛdánlɛdanímatɔy, nm bɛnmítt'ɔm, nn amananná:n, np bɔnpínmam, np' bɛnp'əl, ns hinsíp, nt bademénte, nt' awánt'ɔmatɔy, nw bademénwɛsi, ny hɔnyɛ:; pb tapbɛlhisín, ptʃ' tʃ'ɔbóptʃ'ɔbópt'ɔmatɛy, pd bəhəpdím, ph bəháphápnó, pk' wik'ə'pk'óyt'ɔm, pl ɔplót'ɔm, pm bɔdópmittít'ɔmatɔy, pn bəhəpnanná:n, pp bá:ppáy, ps katápsip, pt aptɔ:híst'ɔm, pt' bɛndápt'ɔm, pw batʃ'alapwɛné:t'ɔmatɔy, py yəllépyəllép; p'm hɛlɔp'mɛntʃ'ɛ, p'n lik'ɔp'ná, p'p yɛp'pébɔ, p't hɛlɔp'tít'ɔm, p't' kasíp't'ɔm, p'w pɛ:p'wɔ'ɔmíst'ɔmatɔy; sb bubusbusín, stʃ' ístʃ'ɛy, sd dasdasdasti, sh ishasé, sk amakískisí, sk' dɔsk'é, sl huslahadí, sm ismadí, sn ɛtatáyɔmisná:, sp héspem, sp' wisp'iltímatɔy, ss hɔssá, st bikistín, st' bɛntást'ɔm, sw huswéyt'ɔmatɔy, sy (lísyan); tb humitbé:m, tʃ' bəttʃ'əká, td k'ɔtdɔk'ɔyín, th tʃ'upithahát'ɔmatɔy, tk lɛkatkát, tk' tʃ'ɔtk'ɔymá, tl wáskátwáskátlɔkítt'ɔm, tm hukitmá, tn bɔk'ɔtná:ndi, tp bɛndátpayitʃ'ɛ, tp' tʃ'up'ítp'ititʃ'é, ts yipítsípt'ɔmatɔy, tt bɔk'ɛ:kittít'ɔm, tt' bɛdɔk'ɔywɔ:mitt'ɔmatɔy, tw ba:kítwó:t'-

ɔm, ty humityat'á'as; t'm k'ɪ:t'má, t'n bat'nɪ́, t't k'i:t'tɪ́t'ɔm, t't' bɛwít't'ɔm, t'y watʃ'át'yu; wb lahéwbá:s, wtʃ' séwtʃ'ɛy, wd hipiwdí, wh k'aləʤawhahábə, wk lilawkɪ:, wk' tɔ:dáwk'óyt'ɔm, wl kawludí, wm k'aləʤawmením, wn tʃ'iwní, wp hipiwpé, ws hawsíp, wt ɛdawtahé:s, wt' bəláwt'ɔm, ww bəláwwɛsi, wy k'awyakkatiwá; yb ɛtataybé:s, ytʃ' madaytʃ'íkt'ɔmatɔy, yd badaydaynó:si, yh bɛdɔk'ɔyhahát'ɔm, yk tʃ'aykím, yk' áyk'atim, yl tʃ'íylal, ym badayménṭ'ɔmatɔy, yn bɛdɔk'oyni, yp bɛdɔk'ɔypí, ys k'uysɔkóm, yt bɛdɔk'ɔytín, yt' amapáyt'ɔm, yw bɛdɔk'ɔywɔ:nɔn, yy tʃ'ayyakkadí; V: aɛ saɛtʃ'é, ai banak'ái; a:i a:ɪ; ɛi halɛ́i, ɛu dimmɛu; ɔi bɔnnɔ́i; ɔ:i dɔ:i, ɔ:ɔ bɔ:ɔt'ɔmatɔy; iɛ biɛy, ii mii, iɔ miɔ; i:ɔ mí:ɔmíst'ɔmám, ɔi bəmmɔkái.

3.2. S allophones. C: [ˀ] a:ˀáy, bɛ:ˀu, bɔdɔk'ɔytí'ɔmisin, bɔmí'ɔmisín, bɔ:siptí'as, bɔ'ɔtʃ'é, binɛ́ɛn, dimmɛ'út'ɔm, dɔ:tí'ɛn, dɔ:ˀɔmiswɛyɛ́:t'ɔmatɔy, ɛhahawa:kɪ́'ɛn, ɛta'ɛtʃ'é, ɛ́'as, há'asi, hɛhɛynó'asi, hɛlú'ɔmisín, i:ˀí, k'a:bɛbɛ'ɔmisín, k'ə'ɔ'sk'ə'ɔs, mɛ́:'ɛn, mɔ:dá'ɔmisín, mí'ɔ'ɔ́t'ɔm, mí'as, panmɔ́'ɛn, wi:ˀɔ́t'ɔm, wu'úpmám, iyɛ́'ai.

4.1. Non-occurrent two consonant sequences. NE: bC; *b*C; tsC; tjC; dC; *d*C; ɒC; gC; hts, hd, hh, hk, hl, hs; xC minus b; ʰts, ʰd, ʰh, ʰk, ʰm, ʰs; ᵉb, ᵉts, ᵉd, ᵉh, ᵉk, ᵉm, ᵉs, ᵉw; k!C; ñC minus k; ph; p!C; th; t!C minus ts,d; ʾb, ʾd, ʾh, ʾm, ʾs; C*b*; Ctj minus n; C*d*; Cɒ; Cg; Cʰ; Cx; Cᵉ; Ck!; Cñ; Cp!; Ct!; S: bC; tʃ'C; dC minus d; hC; ktʃ', kp'; k'tʃ', k'h, k'k, k'l, k'p', k's; ltʃ'; pk, pp'; p'b, p'tʃ', p'd, p'h, p'k, p'k', p'l, p'p', p's, p'y; t'b, t'tʃ', t'd, t'h, t'k, t'k', t'l, t'p, t'p', t's, t'w; 'C.

4.2. Maidu NE ≅ S macrophonemes. /t/ → NE[t] ≅ S[tʰ] ~ [t]; /t'/ → NE[t!] ≅ S[t'] ~ [t]; /d/ → NE[d] ~ [*d*] ~ [ɒ] ≅ S[ɒ]; /p/ → NE[p] ≅ S[pʰ] ~ [p]; /p'/ → NE[p!] ≅ S[p'] ~ [p]; /b/ → NE[b] ~ [*b*] ≅ S[ʙ]; /k/ → NE[k] ~ [g] ≅ S[kʰ] ~ [k]; /k'/ → NE[k!] ≅ S[k'] ~ [k]; /c/ → NE[ts] ~ [c] ~ [tj] ≅ S[tʃ'] ~ [tʃ]; /s/ → NE[s] ≅ S[ʂ]; /n/ → NE[n] ~ [ñ] ≅ S[n] ~ [n']; /m/ → NE[m] ~ [m̃] ≅ S[m] ~ [m']; /l/ → NE[l] ≅ S[l] ~ [ɬ] ~ [l']; /h/ → NE[h] ~ [x] ~ [ẖ] ~ [c] ≅ S[h]; /w/ → NE[w] ~ [u] ≅ S[w]; /y/ → NE[y] ~ [i] ≅ S[y] ~ [y̆]; /i/ → NE[i] ~ [ü] ≅ S[i] ~ [I] ~ [*I*] ~ [ï] ~ ['i] ~ [i'] ~ [iʰ]; /e/ → NE[e] ~ [ë] ~ [ɛ] ~ [ä] ≅ S[ɛ] ~ [(e)] ~ [ɛ̈] ~ ['ɛ] ~ [ɛ'] ~ [ɛʰ]; /u/ → NE[u] ~ [ü] ≅ S[u] ~ [U] ~ [*U*] ~ [ū] ~ ['u] ~ [u'] ~ [uʰ]; /o/ → NE[o] ~ [ȯ] ~ [å] ≅ S[ɔ] ~ [a] ~ [ö] ~ ['ɔ] ~ [ɔ'] ~ [ɔʰ]; /a/ → NE[a] ≅ S[a] ~ [å] ~ [ā] ~ ['a] ~ [a'] ~ [aʰ]; /ə/ → NE[ö] ~ [ü] ≅ S[i] ~ [ï] ~ ['i] ~ [i'] ~ [iʰ]; /ʌ/ → NE[(ö)] ≅ S[ɜ] ~ [ɜ̄] ~ [ʌ] ~ [ɜ̄] ~ ['ɜ] ~ [ɜ'] ~ [ɜʰ]; /:/ → NE[V̄] ≅ S[V·] ~ [(V·)].[6]

5.1. Corpus of loanwords. NE: índyanam *Indian*; S: a:ndrú P.n. (*Andrew*); ándru, andrú-m P.n. (*Andrew*); anet-ím, a:nét, a:net-é, a:netím P.n. (*Anette*); aniyúpe-tí-t'o-ma-toy *finger ring*; asu:ká *sugar*; attó, attó-m P.n. (*Otto*); aynó-m, aynó *year*; a:pel-ím *apple*; bayyá *seed-ball*; ba:ndí *barn*; bænk-ná *bank*; be:tó, be:tó-m, be:toní, be:to-pé *cane*; bil-í, bil-ím, bi:l P.n. (*Bill*); blú:-m P.n. (*Blue*); bo:s-ím *boss*; báksát *buckshot*; cayní *Chinese*; cerikí *Cherokee*; ce:k-é, cek-é-m, ce:k-é-m, ʤæk P.n. (*Jack*); ci:s-í *cheese*; co:c P.n. (*George*); cʌ:k-pé, cʌ:k-á *jug*; del, de:l, del-í, de:lí, de:l-ím P.n. (*Dale*); dey *day*; díavlo p.n.; dígin p.n. (*Diggings*); dolá, dola-nahá:f *dollar*; ʤakson-ím P.n. (*Jackson*); ʤékəb P.n. (*Jacob*); ʤésəwey P.n. (*Jessaway*); ʤim P.n. (*Jim*); elík, elik-e-dí, elik-é, elik-ím P.n. (*Alec*); espe:lá *spur*; é:kə *acre*; é:kon, éko:n P.n. (*Acorn*); fi:l-ím P.n. (*Field*); galon-é *gallon*; go:din-ká-m, go:dn-é,

[6] Harris and Bender (The Phonemes of North Carolina Cherokee, IJAL 12.14-21 [1946]) adopt /h/ as a devoicer to eliminate certain voiceless consonant phonemes. In alternative Maidu analysis /'/ might be set up, since ' occurs principally V'V, to imply b,d,c (/'p/ → b, /'t/ → d, /'k/ → c). Or (e.g.) /bh/, /dh/, /ch/ → p', t', k'.

go:dn-í, go:dn-ím P.n. (*Gordon*); hakalí:ttu-dí p.n. (*Jacalito*); hap'-ím p.n. (*Hop Ranch*); ha:bri:t-ím *half breed*; hæm, hæ:m P.n. (*Ham*); helle:lú-m *blacksmith*; hénte, he:nté, he:nté-m, *henchman*; héŋtawn p.n. (*Hangtown*); hép-t'o-m *help*; hesú:s, hesu:s-é P.n. (*Jesus*); hiksbil-dí p.n. (*Hicksville*); hiksi-dí p.n. (*Hicks's*); hiyé:lú *iron*; hóndot, hóndot-im, hándət *hundred*; hosé, hosé-m, hosé:m P.n. (*Jose*); hospil-dí *hospital*; hu:tel-dí *hotel*; hántʌ *hunter*; índyən p.n. (*Indian*); iskohalá, iskohala-dí p.n.; iskú:l-k'óy-t'o-m *school*; isto:w-í *stove*; i:stowá-m *store*; kahon-í, kahon-ná *coffin*; kale:tá, kale:tá-m *wagon*; kami-no-dí p.n. (*Camino*); kami:sá *shirt*; kandilá:rio P.n.; kap-í, kap-ím *cap of a gun*; kapo:tá, kapo:ta-dí *coat*; káptin *captain*; kawayú-m, kawayu-mi:-ní, kawayu-pé-m, kawá:yú, kawá:yú-m, kawá:yu-ní, kawa:yu-pé, kawa:yu-pé-m *horse*; kawró:n *goat*; kaye:ttá *crackers*; kæmp-ná *camp*; keli:ne-dí p.n.; kelse-dí p.n.; kiwránco, kiwra:ncu-ná p.n. (*Kew Ranch*); ki:lok-é p.n. (*Kellogg*); klinsó:m P.n. (*Cleanso*); kope:tá, kope:tá-m, kope:tá-n, kopé:ta-ná, kope:ta-ní *gun*; kostal-pé-m, kostal-yo-nó-t'om *sack*; ko:pí *coffee*; ko:sá *clothes*; kwintín p.n.; k'ope:ta-ní, k'ope:ta-pé-n *gun*; lánsis *French*; la:ncu-ná *ranch*; leyk *lake*; le:lot-é, le:lot-ím, le:lot-ní *railroad*; liya:tá, liya:ta-ní *riata*; li:blé, li:blé-m, li:ble-ní *rifle*; lo:kfut-ná p.n.; lo:yá *lawyer*; lu:sé-m P.n. (*Lucy*); mayk-ím, mayk-ín P.n. (*Mike*); ma:ces-í *matches*; ma:ndé, mændi, mændí-m P.n. (*Mandy*); má:tn P.n. (*Martin*); mey-kintayá-m P.n. (*McIntyre*); mé:fi:ld p.n. (*Mayfield*); miʃi:n-dí *machine*; monisyon-ím *shot* (*slugs*); musu:ri-dí p.n. (*Missouri*); mu:lá *mule*; o:dó, o:dó-m *gold*; o:tomobil-é-m *automobile*; pala:sabíl p.n. (*Placerville*); pame:lá-m P.n. (*Pamela*); pantolo:l-dí, pantolo:l-í *pants*; pányol, panyol-ím *Mexican*; papel-í, papel-ím, papel-ná *paper*; pa:ká, pa:k'á, pa:ká-m, pa:k'á-m *cow*; pele:sú-m, pele:sú-t'o-m *prison*; pesalté-t'o-m *weigh*; pe:só, pe:so-ce-té, pe:só-m, pe:só-n, pe:so-ná, pe:so-ná:n, pe:so-ní, pe:so-pé-m, pe:so-pé-t'om, pe:so-yá-t'o-m *money*; pisto:lá, pisto:lá-m, pisto:lá-n, pisto:la-ní, pisto:la-pé-m *pistol*; pi:t-ím P.n. (*Pete*); plesəntən-ím p.n. (*Pleasanton*); plimus-úm p.n. (*Plymouth*); po:culay-ím *Fourth of July*; rait-tí-p, rait-tí-t'o-m *write*; saklentá, saklentá-m, saklenta-ná p.n. (*Sacramento*); santiyá, santiyá-m, santi:yá, santi:yá-m *watermelon*; sapa:tu-pé-m *shoe*; sáyn-t'o-ma-toy *sign*; sa:din-í *sardine*; sa:dedé-m *Saturday*; sa:-walu-dí, sa:walu-m *Saturday*; saydá *cider*; sika:lú, sika:lu-ná *cigarette*; síŋgltri: *singletree*; siya-dók-t'o-m, siya-pé, siya-tí-p, siyá-t'o-m, si:ya-bo-dá:n, si:yá-m *saddle*; somle:-lú-m, somle:nú *hat*; steyʃon-dí, steyʃ-on-ím, ste:ʃən p.n. (*Station*); sultá:nú *soldier*; sulu:-n-dí *saloon*; su:sin-ím P.n. (*Susan*); su:-tel-é, su:tel-ím P.n. (*Sutter*); tawa:kú, tawa:-kú-m *tobacco*; taw-ná:n, tawn-dí, tawn-í, tawn-ím, tawn-ná *town*; táusen, táwsen *thousand*; ta:plá, ta:plá-m *board*; te:bol-dí *table*; te:nta-ná, te:nta-pé-m *store*; tilu:kú, tilú:ku-ní *wheat*; wake:lú-t'o-m, wake:nú, wake:rú *cowboy*; wala-sú, wala:sú-m, wala:su-ní *lead* (*pb*); watte:ya-ní *pan*; waye:nté, waye:nté-m *whiskey*; wain-ín, wain-pé-m, wayn-í, wayn-ní, *wine*; wilí P.n. (*Willy*); wincestə *Winchester rifle*; wiskí, wiskí-m *whiskey*; woteyá, woteya-ní, woteya-pé, woteya-pe-ní *bottle*; wo:lsa-ná *pocket*; yawló *devil*; ya:t-ím *yards* (*measure*); ʃeldine-dí p.n. (*Sheldon*).[7]

5.2. Corpus of exclamations. NE: a, aa, ai, a:, cúk-cuk-coya *say ts!ts!*, cúlcul, ham, ha:m, hm, hmm, hnhn, hii:, he:, he:i, ho, ho:, lbl-lbl-lbl, o, pí:-wa-dom *crying "pi!"*, pí:u:no (sung sequence), sií:, si: *look!*, *well!*, su *well!* su: *well!*, weh *whee!*, we:h, wos-wos-wos-wos-wos-wos-wos exclamation connected with P.n. wóswos-im, wo'wo-wo-wo-we-te-n *crying*, *yelling*: wo-wo-wo-wo!; S: á:, a:i, a:'áy, ɸʌhʌ, ha:, hehé, hẽ:, hi:, hó:, i:'í, 'm'm'm, túy (with palm slapped against protruded lips) shout to scare enemy, ɔ́::, ʌ::.

[7] On Spanish loan problems in American Indian languages see: Y. Malkiel, On Analyzing Hispano-Maya Blends, IJAL 14.74-76 (1948).

5.3. Corpus of onomatopoeia. S: catatat-ti *make quick roll with slapstick*, calalal-hahá-t'o-m *make noise of falling shot*, cobópco-bóp-t'o-ma-toy *make sucking noise*, das-dasdas-ti *operate a slapstick*, dekkek-tí-t'o-ma-toy *make sound of wood against wood*, dopopo (kind of noise), dupup-hahá-t'o-m *make noise of falling on ground*, kakakáw-t'o-m *make noise of sticks hitting together*, kámmal *slip, slide of penis* (ʔ), k'ʌ'ʌsk'ʌ'ʌs *make noise of heels on floor*, nussusa-tí-t'o-m *make sound of falling body*, sʌmʌsʌmʌ *have flesh quiver when walking*, we-hapəpə́-t'o-m *stutter*, wososo-ní *rattle*.

THE PRONOMINAL SERIES IN MAYA (YUCATEC)

EUGENE A. NIDA
SUMMER INSTITUTE OF LINGUISTICS

MOISÉS ROMERO C.
MEXICO CITY COLLEGE

0. Introduction
1. The Problem
1.1. Distributional Contrasts between Pronominal Sets
1.2. Relationship to Complete Utterances
1.3. Tense vs. Aspect.
2. The Meaning of the Patterns

0. All the Mayan languages exhibit two series of pronouns, and the positions of occurrence and restrictions on distribution exhibit many similarities. Within each language there are certain features of distribution which are closely related to contrasts in meaning. It is a relatively simple task to describe the distributions, but it is far more difficult to define the subtle semantic distinctions; and without some recognition of the meaning of the patterns in which the pronominal sets occur the description of the Yucatec verb system is not complete. This paper is restricted solely to the structure of Yucatec. Students of Mayan languages will immediately recognize many parallelisms, but it is not the purpose of this paper to formulate any scheme of historical development or to imply that Yucatec represents an essentially older form. What we know of the Mayan languages would certainly not justify any such idea. On the other hand, the contrasts are somewhat more readily recognized and described in Yucatec.

1. Yucatec possesses two sets of pronouns. In order to avoid later complications because of nomenclature these may be designated as A and B. Set A consists of the following: /in/ *1st. pers. sg.*; /a/ *2nd. pers. sg.*; /u/ *3rd. pers. sg.*; /k/ *1st. pers. pl.*; /a . . . -ó?eš[1]/ *2nd. pers. pl.*; /u . . . -ó?oṗ/ *3rd. pers. pl.*[2] Set B consists of the following: /-en/ *1st. pers. sg.*; /-eč/ *2nd. pers. sg.*; /-i/ or /-e[3]/ *3rd. pers. sg.*; /-ó?on/ *1st. pers. pl.*; /-é?eš/ *2nd. pers. pl.*; and /-ó?oṗ/ *3rd. pers. pl.* It is evident that set A contains in the last two forms (/a . . . é?eš/ and /u . . . -ó?oṗ/) combinations of set A in the singular with set B in the plural. These forms constitute discontinous immediate constituents and for the most part involve no ambiguities. Since they represent certain special problems which are not basic to the discussion of the two primary sets, no further reference will be made to them in this paper. For sake of clarity and simplicity only the singular forms will be used as illustrative data.

1.1 The distributional contrasts between pronominal sets A and B include a number of features: (1) position of occurrence, (2) freedom of occurrence, (3) relationship to aspect, (4) in transitive verb expressions, (5) in intransitive verb expressions, (6) in noun and adjective expressions, and (7) in passive verb expressions.

Pronominal forms of set A are preposed[4] to the verb or noun with which they occur,

[1] The suffixes -ó?on, -é?eš, and -ó?oṗ usually occur with a "high" tone (basically a stress) on the first element.

[2] In certain positions the pronouns in, a, and u occur with an initial glottal stop ?in, ?a, and ?u. Absence of the glottal stop means that the pronouns are preceded by an internal juncture.

[3] The suffix -i is the subject form, e.g. ṕini *he left*, and -e is the object form, e.g. tán in lúṕse *I am making him fall*. In certain forms the suffixes are replaced by zero.

[4] Of course, one minor exception to this occurs in those forms consisting of discontinuous imme-

while forms of set B are postposed. For example, compare ʔin wotoč *my house* with wíniken *I am a man*, and tán in ṗin *I am going* with ṗinen *I went*.

The preposed forms of set A are clitics, and forms of set B are suffixes.[5] Not only may there be in slow speech an open phonological juncture between pronouns of set A and the following expression, but free forms may be introduced between the pronouns and the following nouns or verbs. For example, the adjective nohoč *big* may occur between ʔin *my* and ʔotoč *house*, e.g. ʔin nohoč ʔotoč *my big house*.[6] Similarly, the attributive adjective máʔaloṗ *good, well* may occur in the verb phrase tán in máʔaloṗ ṗin *I am going well*.[7] However, free forms never occur between the verb, noun, or adjective nucleus and a pronoun of set B.

In discussing these pronominal morphemes with non-linguistically trained native speakers one can readily obtain the meanings for the pronouns of set A, but the pronouns of set B cannot be recognized when spoken in isolation. The pronouns of set A are not the forms which occur in isolation as complete utterances, but native speakers readily identify the forms of set A, while those of set B appear to have meaning only when occurring in combinations.

The occurrence of set A or B is definitely related to certain aspectual contrasts. For example, máʔaloṗ in ṗin *I go well* contrasts with máʔaloṗ ṗinen *I went well*. The difference here is not one of tense, as the English translation would seem to imply, for both phrases may occur with the particle káʔači, which places the action in past time. Hence, máʔaloṗ in ṗin káʔači and máʔaloṗ ṗinen káʔači would both be translated as *I went well*, but the English translation does not indicate the basic aspectual contrast. The forms within *I* of set A indicate that the subject actively participates in the action. The forms with -en *I* of set B indicate that the subject is in a state of having performed an action. In this latter instance the subject's participation in the action is left entirely to the context. The significance of the form ṗinen *I went* is simply that a first person subject exists in a state of having gone. For the Yucatec speaker the form ṗinen *I went* is more or less timeless, even as wíniken *I am a man* is essentially timeless, but generally translated by a present-tense expression, unless, of course, it occurs with the particle káʔači, in which case the time is past. Nevertheless, the state of being a man, as expressed in wíniken, is completed, and in this respect ṗinen *I went* and wíniken *I am a man* are essentially parallel despite the difference in the translations. Other

diate constituents. However, since the nuclear members in these composite forms are preposed, it is possible to speak of the entire set A as being preposed. This is in contrast with set B, in which all constituent members are postposed.

[5] In the orthography employed in this article no attempt is made to represent the different phonemic junctures in moderate speech, since these have not been fully analyzed. The spaces between words designate structural junctures. That is to say, a space means that the isolated items are best described in terms of a syntactic distribution and not a morphological one. A strictly phonemic writing of the expression tán in ṗin *I am going* spoken at normal rate of utterance would be tániṇṗin, since there are no phonemic junctures to break the form. However, for the sake of clarity in describing the structure of the Yucatec verb it is preferable to write structural junctures. Furthermore, it should be noted that in slow speech phonemic open junctures do occur at each point of a structural juncture (indicated here by a space). However, in such slow speech there is never an open juncture between stems and suffixes of set B.

[6] The w- in the form ʔin wotoc *my house* is a sandhi form occurring with words beginning with glottal stop (there are no phrase-initial vowels) and immediately preceded by the pronouns ʔin *I* or *my* and ʔa *you* or *your*. An initial y- sandhi form occurs after the pronoun ʔu *he* or *his*, e.g. ʔu yotoč *his house*.

[7] The occurrence of such modifiers between the subject pronoun and the verb is not common, but in noun expressions the qualitative modifiers normally occur between the possessive pronoun and the noun head.

aspectual distinctions will be noted below, but this distinction between active participation in an action and one's relationship to a state of having completed an action is basic to all other aspectual contrasts.

In transitive verb expressions pronominal forms of set A constitute the subjects, and forms of set B constitute the objects. Examples: tán u ṗisken *he is carrying me*, tán in tankeč *I am talking to you* (*sg.*), tán u yahsiké?eš *he is awakening you* (*pl.*).[8]

In intransitive verb expressions pronominal forms of sets A and B occur as subjects. When forms A occur, the subject is actively participating in an action, e.g. kin ṫan *I habitually talk*, tán in ṫan (or in optionally contracted form tín ṫan) *I am talking*, ṗín in ṫane *I will speak to him*, má?aloṗ in tan *I speak well*, mantać in ṫan *I always talk*. All of these expressions (except the third, which is future) may be related to past time by the occurrence of ká?ači. When forms of set B occur, the subject is regarded as being in a state of having completed an action, e.g. lúṗen *I fell*, or more correctly, *I am fallen* lúṗeč *you* (*sg.*) *fell* or *are fallen*, hani *he ate*. Note that these expressions, which are regularly translated by verbs in the past tense, can nevertheless be followed by ká?ači. This temporal particle ká?ači is not tautological from the standpoint of Yacatec; the verb forms as such are simply timeless.

In expressions of which nouns or adjectives constitute the nuclei, pronominal forms of set A indicate possession and those of set B indicate subjects of states of being. Pronouns of set A occur with nouns; pronouns of set B occur with nouns and adjectives. Compare the following: ?in wotoč *my house* and wíniken *I am a person;* ?a hanal *your* (*sg.*) *food* and si ṗeč *you* (*sg.*) *are a man;* and ?u kaš *his hen* and haćuc *it is pretty.*[9]

In passive verb expressions both sets of pronouns occur. The most common patterns are with set B: ṗisá?anen *I have been carried*, ṗisá?aṗen *I was carried*, and ṗín ṗisá?aken *I am going to be carried*. With set A the following types of forms occur: kin ṗisá?al *I am habitually carried* and tán in ṗisá?al *I am being carried*. The English translations of these expressions do not clearly indicate the basic differences in meaning. The forms with set B denote primarily states of being resulting from an action, of which the subject is the goal. This distinction is brought out more clearly by the customary translations of the following two forms in Spanish: luṗá?anen *estoy caido* (literally, *I am fallen*) and tán in lúṗsá?al *me están tumbando* (literally, *they are making me fall*). Of course, in the last example there is actually no third person plural subject. The pronoun /in/ *I* is the subject, but the Spanish translation indicates that in the first instance the subject is in a state of having fallen, but in the second example the subject is involved in the actual process of being made to fall. In these forms the occurrence of the causative suffix -s in the second example may appear to be responsible for the distinction in meaning, but a similar distinction may be found in the forms ṗisá?anen, translatable in Spanish as *estoy llevado* (in English, *I am carried*), and tán in ṗisá?al, translated in Spanish as *me están llevando* (in English, *they are carrying me*). These translations do not fully represent the meaning of the original, but they do point to a basic contrast, namely, that with set A the subject is participating directly in the action, while with set B the subject is regarded as one existing in a state of having undergone a particular action.

[8] Transitive verbs occurring in phrases with the particle tán have a suffix -k. This is also true of verb expressions containing the clitic k-, meaning habitual action, e.g. ku ṗisken *he habitually lifts me*. However, when preceded by t-, a particle of completed (occurring with transitive verb expressions) past action, and by ṗín, a particle of future action, verbs do not occur with the -k suffix. e.g. tu ṗisen *he lifted me* and ṗín u ṗisen *he will lift me.*

[9] The third person singular subject in such a form is zero.

1.2. In order to understand fully the parallelism between the various structures just described in section **1.1**, it is important to note the relationship of these constructions to complete utterances in the language. A verb, noun, or adjective nucleus with a pronoun of set B as subject may constitute a complete utterance. However, pronouns of set A with a following verb or noun never constitute a complete utterance. There must always be some preceding constituent. For example, *p̀inen* *I went* may constitute a sentence, but in *p̀in* is only a phrase, and must be preceded by some particle or adjective, e.g. kin *p̀in* *I habitually go*, ma?alo*p̀* in *p̀in* *I go well*, se*p̀* in *p̀in* *I go fast*, šan in *p̀in* *I go slow*, suk in *p̀in* *I am accustomed to going*. These verb expressions parallel completely the noun expressions. For example, ?in wotoč *my house* is not a sentence, but má?alo*p̀* in wotoč *my house is good* is a sentence. With such distributional evidence as this, in which má?alo*p̀* in *p̀in* *I go well* and má?alo*p̀* in wotoč *my house is good* show such complete structural parallelism, it is impossible to discount completely an important genetic or analogic relationship.

1.3. From the evidence of section **1.1** it should be fully evident that the Yucatec verb forms reflect aspect and not tense. Practically any form can be associated with past time by the simple addition of ká?ači, which may occur not only with forms normally translated by English present-tense verbs, e.g. tán in *p̀in* *I am going* and kin *p̀in* *I habitually go*, and *p̀*isa?anen *I am carried*, but also with forms generally translated by past tense forms, e.g. *p̀*isa?a*p̀*en *I was carried*, tu *p̀*isen *he took me*. The verbs are basically aspectual, and the temporal words indicate time. The particle ká?ači does not, however, occur with expressions introduced by the future particle *p̀*ín. However, as indicated in section **1.2.**, the future particle *p̀*ín is parallel to other preposed particles such as k- *habitually*, má?alo*p̀* *well*, se*p̀* *fast*, šan *slow*, and suk *accustomed*.[10]

2. The differences in sets of pronouns and in positions of occurrence evidently reflect certain semantic contrasts. Analogical developments have apparently resulted in the obscuring of certain relationships, but the evidence is sufficiently plain for one to state the broad outlines of the structure.

The predominate patterns consist of (1) formations with set A, in which the pronouns identify the controlling participant of a process or an object, e.g. transitive verb expression tin lú*p̀*seč *I made you* (*sg.*) *fall*, intransitive verb expression tán in *p̀in* *I am going*, noun expression ?in wotoč *my house*, and (2) formations with set B, in which the pronouns identify the noncontrolling participant of a process or a state, e.g. transitive verb expression ta lú*p̀*sen *you* (*sg.*) *made me fall*, passive verb expression lu*p̀*á?anen *I am fallen*, intransitive verbs of state pinen *I went*, noun expression wíniken *I am a man*, and adjective expression čaken *I am red*. Up to this point there is a clear-cut distinction between the so-called "actor" and "goal" constituents, and if there were no more evidence than this we might be inclined to describe the semantic differences in these contrastive patterns on the basis of the different pronominal forms. But this is not sufficient, for the relative positions of the constituent parts constitute a meaning factor. For example, on the basis of the predominant patterns we would expect passive verb expressions to have a subject expression of set B, but in one construction the subject is expressed by a pronoun of set A, e.g. tán in *p̀*isá?l *I am being carried*. It should be noted that verb expressions with subjects of set A all designate processes, and verb expressions with subjects of set B all designate states. The one way in which

[10] In place of *p̀*ín some future expressions employ a paraphrastic structure with the auxiliary verb *p̀*in *go*.

the language could form a verb expression with a subject as the goal of an active process would be means of an intersection of the two principal patterns. This is precisely what has happened in the form tán in ṕisá?l *I am being carried.*

Some persons may be inclined to object to the manner in which we have combined subject and possessive pronouns in set A and subject and object pronouns in set B. Such objections only reflect difficulties imposed by English as a medium of translation. However, in order to describe the scientific basis for such groupings of what appear to be semantically different forms, we may set up sememes for each pronoun and state that each sememe consists of allosememes. For example, the principal allosemes of -en are (1) goal of transitive and passive verbs, and (2) subject of states of being. The principal allosemes of in are (1) subject of a process, (2) possessor of an object, and (3) object of a process. If by means of some generalizing terms such as "controlling participant" or "noncontrolling participant" we can describe some common denominator of meaning in two or more structures, well and good; but if, on the other hand, we must set up several semantically related allosemes which reflect different distributional patterns, we have fulfilled the basic requirements of our descriptive procedures. In other words, it is not necessary to postulate a central core of meaning (a basic alloseme) and relate peripheries to it, any more than we must always set up a basic allomorph and relate all allomorphs to it. Whether or not we succeed in discovering a "core of meaning" is immaterial to the more fundamental problem of establishing sets of related allosemes which reflect structural distributions.

CASHIBO I: PHONEMES[1]

OLIVE A. SHELL
INDIANA UNIVERSITY

1. Introduction to segmental phonemes
1.1 Consonants
1.2 Vowels
2. Introduction to suprasegmental phonemes
2.1 Nasalization
2.2 Stress
2.3 Tone
3. Distribution of phonemes
3.1 Consonants
3.2 Vowels

1. The segmental phonemes include fifteen consonants and six vowels. (The suprasegmental phonemes are nasalization, stress, and restricted high tone.) Words are cited in phonemic shape; also they are cited with phonetic detail of one phoneme enclosed in brackets, while the other phonemes are given without such detail. Thus, ima = i[m^{b}]a *tiny ant*.

[1] Cashibo is a member of the Pano family of languages, centered in the jungle region of Peru, and extending over the border into Brazil, and Bolivia. The Cashibo speakers live in Peru along the Aguaitía River and some of its tributaries, including the Shambuyacu, the location in which the author did her field work. The Cashibo tribe is comprised of a few hundred families sporadically scattered along the rivers. The data for this paper were gathered first at a military school near Lima from Gregorio Estrella, a Cashibo youth, and later supplemented by three field trips to the tribe totaling about eighteen months. The field work was done in collaboration with Gloria Gray, under the auspices of the Summer Institute of Linguistics.

One of the pan-Pano linguistic features seems to be a nasal allophone actualized with a stop off-glide. See Henry Osborn for Amahuaca, IJAL 14.188–90 (1948). Compare also non-Pano language with similar allophone, Jules Henry for Kaingang of southern Brazil, IJAL 14.194–204 (1948).

1.1 The consonant phonemes may be presented in four series in terms of articulation from front to back:

	bilabial	alveolar	alveopalatal	velar	glotta[1]
stops	p	t c[2]	č[2]	k^{w} k	ʔ
fricatives	b[2]	s	š ş		
nasals	m	n	ñ		
vibrant		r			

The bilabials are labialized before central high vowel /ï/; with a very few speakers /b/ is also slightly labialized before /a/: pï- = [p^{w}]ï- *undress*; bïci = [β^{w}]ïci *other*; mïï- = [m^{w}]ïï- *touch, handle*; baka = [β^{w}]aka or [β]aka *river*. In other positions /p/, /b/, /m/ appear as [p], [β], [m]: kapa *squirrel*; bimi *fruit*; mita *rains*.

The stops /t/ and /k/ are unreleased in word final position, as in: ʔ at *do (it)*!; ʔak *done*. They are released in other positions, as in kana *big parrot*; tita *mother*.

A perceptible y-glide appears after /č/ and /š/ when these consonants occur before the vowel /a/. The fricative /š/ is also palatalized before vowel /o/. After /č/ (kača = ka[č^{y}] a *chicha*), the palatalization is scarcely perceptible; it is relatively strong after /š/ (ʔašá = ʔa[š^{y}]á *frog*, šǫko = [š^{y}]ǫko *cat*). Before other vowels /č/ and /š/ appear without y-glide: bači *mosquito net*; čokï *small parrot*; šiki *corn cob*.

Of the remaining stops, the labialized /k^{w}/ appears always as [k^{w}], the glottal stop as [ʔ], and the affricate stop /c/ as [c], that is, [ts]: k^{w}ïbí *mouth*; ʔino *wi'.lcat*; baci *egg*.

Before certain vowels /š/ is subject to palatalization (see above). However, all the sibilants /s/, /š/, and /ş/ have voiced

[2] /b/ is phonetically a voiced fricative [β]; the phonemes /c/ and /č/ are phonetic affricates (/c/ = [ts], /č/ = [tš]), but count phonemically as stops in Cashibo, and are so called in this paper.

free variants [z], [ž], and [ẑ] respectively, between vowels: pi-isa tanį = pi-i[z]a tanį or pi-i[s]a tanį *want to eat.*

The nasals /m/ and /n/ are produced with a stop release in some word medial occurrences before oral vowels: pino = pi[n^{d}]o *humming-bird*; bomï = bo[m^{bw}]ï *kind of palm.* Compare /m/ and /n/ before nasalized vowels where they appear as [m] and [n]: nïmį *deep*; k^{w}ïïnį *like, want*; kanąą *by the parrot.* In some word medial before oral vowels /m/ and /n/ appear as [m] and [n]: opí-ma *not pretty*; ʔi-nïti *to spend the night.* (It so happens that the only occurrences where /m/ and /n/ appear as [m] and [n] word medial before oral vowels are clitic initial). The nasal /ñ/, however, appears only as [ñ], where one might expect a stop release as with the other nasals: pïñąą *arm*; año *what?* All nasals appear phonetically as simple nasal consonants in word initial position: manï *metal*; našiti *to bathe*; ñǫkï *lizard.*

The vibrant /r/ is a voiced flap, as in rïti *to knock down, kill*; maráš *kind of plant.*

1.2. The six vowel phonemes form a high-low contrast in front, central, and back positions; front (high /i/, low /e/) and central (high /ï/, low /a/) vowels are unrounded; back vowels (high /o/, low /ɔ/) are rounded.

The front vowel /i/ is pronounced [ɪ] in two words: šį̈kǫ́ = š[į̈]kǫ́ *wild banana*, ʔočíti = ʔoč[ɪ]ti *dog.* (These are possible borrowings from Shipibo, where /i/ frequently is [ɪ]). There is no contrast in other words and therefore [ɪ] is not a new phoneme. Thus, otherwise /i/ appears [i]: šïki *corn*; bimi *fruit.*

The vowel /ï/ is most often heard central and unrounded. In some speakers the lip-spreading is quite pronounced and the tongue position well forward; in others the lips are relaxed, and the tongue position farther back. Between vowels, especially preceding vowel /i/, /ï/ is sometimes heard as a voiced velar fricative: naïį = na[ɣ]i *cultivate*; bïį = [$\beta^{w}\gamma$]į *bring.*

The low front vowel /e/ is mid open vowel [ɛ]. Vowel /e/ is produced with slight pharyngeal contraction in some speakers. The phoneme itself, with or without pharyngeal contraction, is of infrequent occurrence. Examples are mee *earth*; k^{w}ee *Aguaitta River.*

The three vowels mentioned above have each more than one phonetic value; in contrast, /a/, /o/, /ɔ/ have a single phonetic value in all positions: bata *sweet*; rono *snake*; ñɔɔ *wild hog.* For further distributions, see **3.2.**

2. In the description of suprasegmental phonemes (nasalization, stress, high tone), V indicates any vowel and C any consonant.

2.1. Nasalization is here taken as a suprasegmental phoneme. As such it combines with each of the six oral vowels. (Another way of describing the matter would be to set up twelve phonemic vowels, of which six are nasalized.) Examples are: tąšą́-*tilt*; tïtǫ́ *windpipe*; ïšą́ *fire*; meę́ *by way of the earth*; ñaį *tick*; šɔǫ́ *guacamaco.* Nasalized vowels are less frequent than oral vowels (q. v. **1.2** and other parts of this paper).

Nasalized vowels may be actualized as above, or as a sequence of oral vowel plus homorganic nasal consonant before a stop, as [Vm] before /p/, [Vn] before /t/, and [Vŋ] before /k/. Compare boą́- = bo[ą́]-*carry away* and boą́-pati = bo[ám]-pati *to carry down*; boą́ti = bo[án]ti *to carry away*; boą́kï = bo[aŋ]kï *carried away.* In utterance final, nasalized vowels may be actualized as such or as [Vn]: k^{w}ą = k^{w}[ą] or k^{w}[an] *go!* In all sequences noted of VV in which the first V is both stressed and nasalized, the second V is also nasalized: čašǫ́ą *big deer*; k^{w}ąąšį́ (*he*) *went just now.*

2.2 Stress like nasalization is taken as a suprasegmental phoneme, strong stress being in contrast with weak stress. Phonemic strong stress is accompanied by non-phonemic high tone. There are three ways of indicating strong stress on words in isolation: where no stress diacritic is used, this is to indicate that strong stress is on the first syllable; otherwise it is specifically marked on any other vowel (non-initial). However, in some words of more than three syllables, there may be initial as well as medial strong stress, in which case both are marked. Both nasalized vowels and oral vowels may appear stressed, and show a contrast as the following: ʂĭĭʂĭ = [ʂĭĭʂĭ] *kind of bird*, ʂiʂĭ *kind of tree*; ʔoto = [ʔóto] *moth*, ʔotó *tumbo* (*kind of fruit*); ʂĭna = [ʂĭna] *worm*, ʂĭná *huabas* (*kind of fruit*); kana = [kána] *big parrot*, kaná *lightning*; čakati = [čákati] *to chew*, čakáti *to trip and fall*.

Strong stress is found to occur only on the first or second vowel of isolated words with two or with three vowels (see above). Words in isolation almost always contain at least two vowels, which may be contiguous, forming clusters.

In identical VV the cluster may be phonetically a continuous long vowel or two rearticulated identical vowels. Strong stress may be either on the first or on the second vowel. The two stress patterns thus may produce phonetically two types of glides, downward and upward: tɔɔ = [tɔ́ɔ] *cane*, tɔ́ *kind of palm*; ʂɔɔ = [ʂɔ́ɔ] *bone*; ʔɔ́ *tapir*; boo = [bóo] *hair*; naa = [náa] *nest*.

In non-identical VV, as with identical VV, strong stress occurs on either the first or the second vowel, and may result in downward and upward glides: ʂaï = [ʂáï] *turtle*; ñaį *tick*.

Words in isolation infrequently contain a single vowel, which if oral is followed by a consonant, and if nasal may actualize as [Vn]. Such single words carry strong stress as part of predictable intonation pattern: ʔat = [ʔát] *do (it)*! ʔit = [ʔít] *stay*! kʷą = [kʷą́] or [kʷán] *go*!

In isolated words containing more than three vowels, strong stress may fall on any one, or more than one, of the vowels except the final one: citĭkĭrĭkiti [cítĭkĭrĭkiti] *belt*; pĭ́kara-tĭkį̆kĭbĭ *day after tomorrow*.

2.3. High tone is phonemic, in very restricted distribution.[3] High tone and strong stress phoneme never fall on the same vowel. High tone occurs only with vowel /į/ and only in utterance final: abatį (*he*) *runs*; abáašį (*he*) *ran just now*; piį (*he*) *eats*; pii-mį (*he*) *does not eat*; piašį (*he*) *ate just now*; pióǫ̨ʂį (*he*) *ate yesterday*. Contrastive examples with vowel /į/ without high tone but utterance final are: abatį (*I, you*) *run*; ʔaį (*I, you*) *do*; piį (*I, you*) *eat*. (It so happens that the high toneme is not only restricted positionally as indicated, but itself may constitute a single morpheme.)

3. Under **1** and **2** above, allophonic distributions were treated in reference to given phonemes. We now treat distribution of phonemes in reference to word matrix and utterance matrix.

3.1. Some stops (p, t, c, č) and one fricative (b) appear in sequence CV in which V is any vowel other than /e/: piti *food*, pïti *to undress*, pono *vein*, pabí *ear*, ñapǫ́ǫ̨ *kind of fish*; tomi *kind of parrot*, tĭʂá *nape of neck*; cïpa *resin*, caca *kind of fish*; čona *monkey*, ičibi *kind of tree*; bona *big ant*, bina *wasp*.

[3] The diacritic employed for this phonemic high tone is the reverse wedge placed over the vowel bearing a contrastive high tone. In terms of phonetic high, however, a strong stressed vowel is, as mentioned, also high. In a given word, therefore, there will be a high tone (contrasting strong stress) on a V preceding the final V in words of more than one V; thereafter the tone will remain high between the V with phonemic stress and the V with high tone. V with high tone serves to keep the tone high from the stressed vowel on; without final high tone, the tones descend after phonemic stress.

In the sequence CV in which C is /š/, V may be any vowel other than /i/: šïna *worm*; šobo *house*; šeena *a man's name*; šano *woman*; šɔ́ *guacamayo*.

In the sequence CV in which C is /kʷ/, V is restricted to /ï/ or /a/ or /e/: kʷïǫ́ti *to pierce*; kʷati *to hear*; kʷee *Aguaitia River*.

In the sequence CV in which C is any consonant other than those noted (that is when C is k, ʔ, s, š, m, n, ñ, r), V may be any vowel (no restriction). Some examples are: kïnï *corral*; ʔeeti *to devour*; sano *delicious*; šapi *crayfish*; nami *meat*; ñoá *kind of plant*; rïšká *small plant*.

All C occur in word initial, and /ʔ/ is restricted to word initial; other than /ʔ/ all C occur in word medial; only a few C appear in utternace final, namely, /s, š, š, t, k/, and of these only /s, š, š/ appear in word final when the word is in utterance medial: ñaís *small animal*; bipíš *guayava*; kašaïš *lungs*.

The cluster CC in word medial marks syllabic boundary, the first C closing the prior syllable, the second C beginning the following syllable. In such CC the first is a voiceless fricative; the second C is almost any other C. Compatible clusters are listed in the chart that follows:

	p	t	kʷ	k	b	s	m	n	ñ	r
s	sp	st	skʷ	sk	sb		sm	sn	sñ	sr
š	šp	št	škʷ	šk	šb	šs	šm	šn	šñ	šr
š	špˌ	štˌ	škʷˌ	škˌ	šbˌ		šmˌ	šnˌ	šñˌ	šrˌ

Examples of CC in words are: ʔispa *star*; tïstati *to cut hair*; paískʷe *right fin*; ʔisko *kind of oriole*; is-bïcini *come from seeing*; kʷa-kasmati *cannot hear*; matás-nïti *to nail at night*; kamísño *with the edible root*; maís-ribi *ants also*; ʔišpi *small black monkey*; kïštó *thick*; niš-kʷacini *come from being angry*; niškï *angry*; niš-baiti *to be angry much of the day*; taíš-sa *like the arrow shaft*; išmí *kind of bird*; totíšno *on the plant*; taïšno *along with the arrow shaft*; taïš-ribi *arrow shaft also*; kïšpą́ *sliver-like stick*; kaštá *tan color*; mašíš-kʷacini *come from being cold*; paško *side branch*; ašbi *kind of tree*; ʔoš-miti *to put to sleep*; ʔoš-nïti *to sleep at night*; ʔamášño *along with the small plant*; micóš-ribi *you (pl.) also*.

3.2. One oral vowel has been found only in word medial and in word final, namely, /e/; other vowels occur also in word initial: itáš *leg*; ïnï *here*; omǫ́ *kind of frog*; anáka *minor (kinship term)*; ǫi *make*; bimi *fruit*; nïtï *day*; čona *monkey*; mee *earth*; nɔ́si *banana*; bɔɔ *kind of parrot*.

The less frequent nasalized vowels are more limited in distribution than oral vowels. /ęˌ/ occurs word final; /įˌ, ïˌ, ǫˌ, ąˌ/ occur in word initial; these and also /ǫ̨/ occur in word medial and final: įóš *any white-tailed animal*; ïšá *fire*; ǫčǫ *kind of tree*; ąsíti *to clean out bowel with length of forefinger*; nįti *to pull tight*; maíą *swept*; čašǫ́ą *big deer*; tąšati *to tilt*; kʷïǫ́ą *inclined*; kʷïkí *forked post*; mïkí *hand*; ʔinǫ́ *by the wildcat*; meę́ *by way of the land*; šɔ́ɔ *guacamayo*.

Two-vowel clusters within words are common. The stress may be on the first or second of the vowels.

3.2.1. When the stress is on the first vowel, the following combinations of two oral vowels are found: ii, ïï, io, ia; ïi, ïï, ïo, ïa, ïɔ; oi, oï, oo, oa; eo, ee; ai, aï, ao, aa; ɔi, ɔɔ. Examples of these clusters in words are: nïmí-ira *very deep*, ʔïï *heavy*, čio *cicada insect*, pia *arrow*; pïi *leaf*, bïïti *am sleepy*, ʔio *bigness*, nïa *kind of bird*, ʔorakí-bi *from far*; boi *kind of tree*; roï *stone*, koo *pus*, čoa *clay*; kʷeoka *name of a river*, ʔeeti *to swallow*; bai *road, path*, šaï *turtle*, bïmánao *in front*, naa *nest*, ɔi-sa tanį *want to make*, kɔɔkï *sprouted*.

The following clusters of two nasalized vowels have been found: įį, įą; ïï, ïą, ïǫ; ǫï, ǫą; ąï, ąą; ǫǫ. Examples of these clusters in words are: nįįšąą *pulled tight a few days ago*, nįąšį (*he*) *pulled* (*the rope*) *tight just now*; rïïšąąšį (*he*) *ground a few days ago*, rïąšį (*he*) *ground just now*, nanį̀ǫ *kind*

of tree; sǫ̨ĩ́ʂą́ą *sawed a few days ago*, čašǫ́ą *big deer*; nąĩ́ʂą́ą *placed a few days ago*; kʷą́ą́ʂĩ́ (*he*) *went just now*; isǫ̨́ǫ̨ *saw yesterday*.

The following clusters of oral V plus nasalized V are found: iį, ĩį, oį, aį, ǫį, aą; piį *eat*, kĩnĩį *enclose*, kʷĩ́noį *sharpen*, ʔaį *do, make*, ǫį *make*; ñokáą *asked just now*. (VV̨ clusters have been found only utterance final.)

3.2.2. When the strong stress is on the second vowel, the following combinations of two oral vowels are found: ií, ió, iá, ió; ĩí, ĩí, ĩó, ĩá, ĩó; oá; aí, aĺ, aá; ǫí, ǫ́ɔ. Examples in words are: tiís-kiti *to swell*, čióš *white-tailed animal*, ʔiáti *to carry over shoulder*, ió *new*; nĩíš *savory*, ĩís-kiti *to dry*, bĩóti *to fell*, pĩás-kiti *to emerge*, ʂĩóš *kind of tree*; ñoá *kind of plant*; maís *kind of ant*, saĺti *to be hidden*, čaáti *to gather fruit*; šǫ́ína *name of river*, ʔǫ́ó *tapir*.

The following clusters of oral plus nasalized vowels have been found: iį́, iį̃, ią́; ĩį́, ĩį̃, ĩǫ́, ĩǫ̃; oį́, oą́; eę́; aį́, aĺ́, aǫ́, aą́; ǫ́ǫ̃. Examples in words are: ʔáro-kiĵti *help to cook*, niį̃ *earthquake*, ʔią́ *mudhole*; kʷĩ́sati *to make ill*, nĩĩ̃ti *burn* (*transitive*), bĩǫ́ *tears*, kʷĩǫ̃ti *to incline, slant*; boĵti *to carry by*, boą́ti *to carry away*; kʷeę́ *by the Aguaitia River*; baĺ *kind of fish*, kaĺ́ti *to stir*, paǫ́ *bread-fruit tree*, paą́ *bread*, čǫ́ǫ́ *kind of fish*.

One cluster of nasalized plus oral vowels has been found, namely, įó, as in įóš *any white-tailed animal*.

3.2.3. Clusters of more than two vowels appear less systematic than the VV clusters noted above. Three-vowel clusters are very frequent. The stress may be on the first or second vowel. Examples of VVV in words are: piia *he who is eating*; ʔiáiʂą́ą *carried over shoulder a few days ago*; ʔiáakiʂĩ́ (*he*) *carried over shoulder long ago*; meeo *down*; ʔeeį *swallow*; ʔeeiʂą́ą *swallowed a few days ago*; banaía *he who is talking*; naiį *cultivate*; bĩǫ́iʂą́ąʂĩ́ (*he*) *shed tears a few days ago*; bĩóiʂą́ąʂĩ́ (*he*) *felled the other day*.

Four- and even five-vowel clusters are possible: kʷaiǫ́ǫʂĩ́ (*he*) *played yesterday*; čiǫ́iǫ *group of cicadas*; paĩ́ɔia *it is hurting*

INDIAN STREAM-NAMES IN GEORGIA II

WILLIAM A. READ
MIAMI, FLORIDA

ALACOOCHEE. A river in Irwin county. 1823 Tanner Map of Georgia and Alabama: Alacoochee. If this name is authentic, it probably means *Little Potato*, the source being Creek ahalak *potato* and -uchi *little*. Ahalak is a variant of aha. I surmise, however, that Alacoochee is actually intended for Willacoochee, the name of a creek in Irwin county; for I have been reliably informed that Alacoochee as the name of a stream is never heard in the southern part of the state.[1] Willacoochee is composed of Creek wi- *water*, łako *big*, and -uchi *little*—that is, *Little River*. A by-form Withlacoochee designates a river flowing through southern Georgia and uniting with the Suwannee at Ellaville, Madison county, Florida. The letters -thl- in Withlacoochee indicate an attempt to reproduce the voiceless l of łako.

ALAPAHA. A river in southern Georgia, uniting with the Suwannee at Nobles Ferry about 20 miles southwest of Jasper, in Hamilton county, Florida. 1823 Tanner Map: Alapaha R. Alapaha-Talofa was a former Seminole settlement in Hamilton county. Talofa is from Creek talofa *town*. Alapaha is a Creek loan from Timucua ara *bear* and paha *house* or *lodge*, with substitution of l for r.[2] The name designates a lodge belonging to the bear clan—in Timucua, ara hasomi. Paha seems to merit an explanatory comment. It is apparently related to bohio (buhio) of Island Arawak and Arawak of the mainland, whence American Spanish has borrowed bohío (buhío). Vázquez de Espinosa, in his description of the country near the river Marañón, mentions bohío, "which means house."[3] Quandt records ubannabuhu as Arawak for *eine Hütte*—literally, a hut thatched with leaves.[4] Martius renders domus by Arawak bahi, bahü, boa, and bohio (Taino).[5] Leo Wiener errs, I think, in deriving Amer. -Sp. bohío from a Mandingo dialect.[6] If bohio had been brought by slave traders from Africa to the New World, this term should in all likelihood have appeared in Brazilian Portuguese. In that language, however, it is mocambo and quilombo, both of African origin, which signify *huts* for fugitive slaves.

ALAPAHOOCHEE. My thanks are due to John A. McLeod, postmaster at Valdosta, Ga., for the following note of February 8, 1950, on the location of this stream:

"Mud Swamp and Grand Bay unite about 10 miles southeast of Valdosta to form the Alapahoochee River, which runs into the Alapaha at the Georgia-Florida line."

1849 George White Statistics of the State of Georgia (Savannah) 385: Allapahoochee. This name is composed of Alapaha, q. v., and the Creek suffix -uchi—hence the meaning *Little Alapaha*.

AMICALOLA. A name applied to a stream—Little Amicalola River, the source

[1] I wish to express again my indebtedness to those persons and firms whose names are cited in a former article of mine; see IJAL 15. 128–132 (1949).

[2] Cf. J. R. Swanton, in American Speech, October, 1934, p. 219.

[3] Compendium and Description of the West Indies. By Antonio Vázquez de Espinosa. Translated by Charles Upson Clark. Washington: Smithsonian Misc. Collections, vol. 102, September 1, 1942, p. 415.

[4] Nachricht von der Arzwackischen Sprache. Leipzig, ed. Platzmann, 1900, p. 21.

[5] Wörtersammlung Brasilianischör Sprachen. Leipzig, 1867, pp. 308, 315.

[6] Africa and the Discovery of America 1.71 Philadelphia: Innes & Sons, 1920. Cited by permission of the publishers.

of Amicalola Falls and Amicalola Lake in Dawson County. In this area there is another stream known as Big Amicalola River. 1849 White op. cit. 390: Amicalolah (Creek). Amicalola is derived from Cherokee ama *water* and kalola *tumbling*.

APALACHEE. A river joining the Oconee on the southeastern boundary of Morgan County. Apalachee is the name of a Muskhogean tribe formerly occupying the region north of Apalachee Bay, Florida. De Soto visited the mighty province of "Apalache" in 1539.[7] It is doubtful whether this name should be traced to Choctaw apelachi *helpers, allies*, or to Hitchiti apalahchi *those on the other side*.

CHATTAHOOCHEE. A well-known river of northern and western Georgia, uniting with the Flint to form the Apalachicola River of northwestern Florida.

"The name of this river is from Chatto a *stone;* and ho-che, *marked* or *flowered;* there being rocks of that description in the river, above HO-ith-le-ti-gau, at the old Town Chattohoche."[8] The name would now be written Chato Huchi (or Hochi) in the language of the Creeks. 1818 Early Map of Georgia: Chattohochee "flowered stone."

East of Manáos, on the Amazon River, there is a town with an Indian name similar in meaning to that of Chattahochee: Itacoatiara, from Tupi ita *rock* and cuatiara *painted* or *inscribed*.

CHATTOOGA. 1. A headstream of Savannah River, on the boundary between Georgia and South Carolina. 2. A river in northwestern Georgia, flowing into the Coosa in Cherokee County, Alabama. Swanton offers the plausible suggestion that the name may originally have been Creek, in the sense of "full of rocks," from chato *rocks* and the collective suffix -algi, which sometimes loses its l.[9] Efforts to interpret the name in Cherokee are futile.

CHAUGA. A stream tributary to the Oconee river in Oconee County. 1892 and 1921 U. S. Geol. Survey Walhalla Sheet: Chauga. I take Chauga for an alteration of Creek chahki *shoal*. There is a Shoal Creek in the adjoining county of Clarke, according to White, op. cit. 179; and the village of North High Shoals is situated at the point where the counties of Oconee and Morgan unite. The shift of chahki to Chauga is not incredible. The reliable Benj. Hawkins heard Creek achaki *beloved* as chaugo.[10]

CHICKAMAUGA. A creek in Walker County, entering the Tennessee River several miles northeast of Chattanooga, in Hamilton County, Tennessee. This creek is known locally as South Chickamauga, and its three branches are called East, West, and Little Chickamauga, respectively. The name Chickamauga was applied to a band of Cherokee who established settlements on Chickamauga creek near the present site of Chattanooga. In the war of the Revolution the Cherokee adhered to the English cause. Brown connects the name Chickamauga with Creek chuko *house* and miko *chief*—that is, "the dwelling place of the chief."[11] The name cannot be interpreted in Cherokee.

CHOKEE. A creek in Lee county. The name has been shortened from Chokeefichickee, a form recorded by White, Statistics 368. November, 1937, Topographic Map: Chokee Cr. The origin of this name is obscure. Perhaps it may be derived from Creek chokofa *rotunda* and chikhi *raised on a mound*.

CHUPEE. A creek in Monroe and Bibb counties. 1823 Tanner Map: Chupee Cr. 1901 Lippincott's Gazetteer 489: Chupee. This name seems to be obsolete. Its source

[7] See E. G. Bourne, Narratives of the Career of Hernando de Soto (New York, 1904), 2.73.

[8] Benj. Hawkins, A Sketch of the Creek Country in 1798 and 99 (Georgia Hist. Soc. Colls., Vol. III, Savannah, 1848), 52.

[9] See American Speech, October, 1937, p. 213.

[10] Sketch 7.

[11] John P. Brown, Old Frontiers (Kingsport, Tennessee), 529.

is Creek chapa *halfway*. In Russell County, Alabama, there is a creek named Hatchechubbee, its elements being derived from Creek hachi *creek* and chaba *halfway*.

COLOMOKEE. A creek tributary to the Chattahoochee in Clay County. Kolomi or Kulumi was a Creek town formerly situated for a short time on the Chattahoochee; subsequently the settlement was removed to the Tallapoosa. The meaning of Colomokee is unknown. Gatschet suggests a connection with Creek a'hkolumas *I clinch*.[12] Swanton observes that a by-form Colomino, recorded on some maps, may point to a derivation from Creek kulo, a kind of oak with large acorns, and omin *where there are*.[13] In that case the name would end in Creek oki *water*.

CONASAUGA. A river forming the boundary between Murray and Whitfield counties in northwestern Georgia. In 1540 De Soto arrived at Canasagua, where "twenty men came out from the town on the road, each laden with a basket of mulberries."[14] The meaning of Conasauga has not been determined. Swanton suggests that it may be from Creek ikana saoga *rattling rocks*.[15] I am not familiar with ikana *ground* in the sense of *rocks*. The common term in Creek for a rock is chato. Brown derives the name from Cherokee guna *arrow* or *bullet* and soquo *one*, a term inspired perhaps by some unusual feat of marksmanship.[16] Mooney thinks that the Canasagua of the De Soto narratives may have been located near Kennesaw Mountain, in Cobb County, Georgia. He cannot analyze the Cherokee form of the name—Gansâgi or Gansâgiyi.[17]

ETOWAH. A river in Dawson and Lumpkin counties. Source: Cherokee Itawá, the name of several extinct Cherokee settlements, one of which was situated near the present village of High Tower, in Forsyth county, and another perhaps on Hightower creek in Towns county. Hightower, or High Tower, is a corruption of Itawá. But the Cherokee name is of obscure origin. Perhaps it is a loan from Creek italwa *town*. Brown, however, connects Itawá with Cherokee etawaha *deadwood*.[18]

LITTLE ATTAPULGUS. A creek in Decatur county. 1849 White op. cit. 200: Little Attapulgus. Attapulgus means *Dogwood Grove*—from Creek atapha *dogwood* and the collective suffix -algi.

LITTLE OCMULGEE. A river on the line between Wheeler and Telfair counties. See Ocmulgee, below.

MUCKALEE. A creek in Sumter and Lee counties, joining the Kinchafoonee in Dougherty County. 1799 Hawkins Sketch 172: "Aumuc-cul-le (pour upon me) is on a creek of that name. . . ." 1849 White op. cit. 368: Muckalee. Hawkins' rendition of this name of a former Chiaha village is based on Creek am *me* and ohkalita *pour on*. Gatschet errs in associating a by-form Amakalli with the Cherokee origin of Amicalola.[19]

MUCKALOOCHEE. A creek rising in Marion County and entering the Muckalee not far above Leesburg in Lee County. 1849 White op. cit. 368, 525: Muckaloochee. This name signifies *Little Muckalee*, the source being Muckalee and the Creek diminutive suffix -uchi. The spelling Muckatoochee, recorded on a few modern maps of Georgia, is inaccurate and cannot be translated in Creek.

NOONDAY. A creek in Cobb and Cherokee counties. 1948 Rand McNally Map: Noonday Cr. The Cherokee call both *sun* and *moon* nuñdă according to Mooney, Myths 528; hence the modern name of the creek is obviously a product of folk etymology. It may be noted that Choctaw

[12] Albert S. Gatschet, A Migration Legend of the Creek Indians (Philadelphia, 1884), 1.136.

[13] BAE-B 73.267, fn. 3 (1922).

[14] Bourne, Narratives, 1.72–73.

[15] See American Speech, October, 1934, p. 219.

[16] Old Frontiers 529.

[17] James Mooney, Myths of the Cherokee, BAE-R 19, pt. i, 518–519 (Washington, 1900). Cf. Hodge, Handbook 1. 656 (1907).

[18] Old Frontiers 531.

[19] Cr. Migr. Legend, 1.136.

hashi and Hitchiti hāsi likewise designate either the sun or the moon. When it becomes necessary to distinguish the one planet from the other, the Indians add the proper qualifying term.

OCMULGEE. A river of central Georgia, uniting with the Oconee and the Little Ocmulgee to form the Altamaha. Ocmulgee is from Hitchiti oki *water* and mulgis *it is boiling* or *bubbling*, a term that was perhaps first applied to Indian Springs in Butts county. Two alternative names for the Little Ocmulgee have become obsolete: Auchenehatchee of the Early (1818) and Tanner (1823) maps; and Auchee-Hatchee, in White op. cit. (1849) 540. The former is from Creek achina *cedar;* the latter, from Creek ochi hickory. Both names end in the equivalent of Creek hachi *creek*. White's Auchee- may rest on a misapprehension of the earlier Auchene-.

OCONEE. A river about 250 miles long, an affluent of the Altamaha. The name Oconee was applied to two divisions of Creeks as well as to an ancient Cherokee town. Its meaning is uncertain, though Gatschet connects it with Cherokee egwâni *river*.[20]

SALLACOA. A creek in the northwest, forming a junction with the Coosawattee river in Gordon county. 1948 Rand McNally Map: Sallacoa Cr. There was formerly a Cherokee settlement on the creek. The name of the settlement, in Cherokee Salikwâyi or Selikwâyi, is said to designate a species of bear-grass (Yucca) as well as a small green snake.[21] But the Rev. Lloyd G. Marlin derives the name of the creek from Cherokee selu-egwa *big corn*.[22] Coosawattee signifies *Old Creek* (*Place*), from Cherokee Kusawetiyi—Kusa *Creek Indian*, uweti *old*, and (-yi *place*).

SOQUEE. A river entering the Chattahoochee near Clarksville, Habersham county. Sâkwiyi or Sukíyi, the name of a former Cherokee settlement, has given rise to the current form. Mooney observes that the name has lost its meaning.[23] Perhaps Sukíyi may be an alteration of Creek sukha *hog* plus the Cherokee *locative* -yi.

STITCHIHATCHIE. A creek in Laurens county. Sept. 12, 1916, Soil Survey of Laurens County: Stitchihatchie Creek. The first part of this name probably means *Indian*, from Creek isti *man* and chati *red*. The second part is from Creek hachi *creek*.

The Early map of Georgia (1818) records the name as Tickeehatchee; White Statistics 363 writes it Tickee Hachee. As the stream crosses the western line of the county, this primitive term seems to mean *Border Creek*, from Creek atiki *border* and hachi *creek*. I recall now that Alabama has a popular geographic name—Talladega, from Creek talwa *town* and atigi *border*.

TICKEEHATCHEE. An obsolete designation of the creek Stitchihatchie.

TUCKASEEKING. A small lake tributary to the Savannah river in Effingham county. 1818 Early Map: Tuckasee Rings. 1823 Tanner Map: Tuckasee Cr. The spelling on the Early map is erroneous. A place named Tuckaseeking is recorded on A New Map of Georgia, No. 20, in Mitchell's Universal Atlas (Philadelphia, 1850). This name is perpetuated in that of the lake, for which a source may possibly be seen in Creek tukaskina *peppergrass* (Lepidium). The name is too far south to be associated with Cherokee tuksi *terrapin*.

TUGALOO. A river joining the Savannah on the northeastern boundary of Georgia. Popple Map 1733: Tugeloo R. A Cherokee settlement called Dugiluyi was once situated at the confluence of Toccoa creek with Tugaloo river. The origin of the Cherokee name is not altogether certain; but Dugilu may refer to a place at the forks of a stream, according to Mooney.[24] If this conjecture be true, then Dugilu may be a loan from

[20] Cr. Migr. Legend, 1.140.

[21] Mooney, Myths 530.

[22] The History of Cherokee County (Atlanta, 1932), 6. Cited by permission of the author.

[23] Myths 530.

[24] Myths 516.

Chickasaw tokolo *two*. "The Cheerake have an old waste town, on the Georgia south-west branch of Savannah river, called Toogaloo, which word may come under the former observation upon the numerical word *two*. . . ."[25] The Mitchell map of 1755 shows Tugeloo as the name of a settlement on the upper reaches of the Savannah. In the eighteenth century a Chickasaw band resided, first, near New Windsor, South Carolina, and later in the same century at Augusta, Georgia. I must not fail to mention that Brown offers a unique interpretation of Tugaloo, deriving it from Cherokee ama-tu-gwa-lunyi *water rolling over rocks there*.[26]

UPATOIE. A creek uniting with the Chattahoochee in Muscogee county. 1849 White op. cit. 443: Upatoi. 1948 Rand McNally Map: Upatoie. In 1799 Benj. Hawkins gives Au-put-taue as the name of a Lower Creek village situated on Hatche thlucco, about 20 miles from the Chattahoochee.[27] Hat-che thlucco would now be written Hachi łako *Big Creek*. As for Upatoie, it has been connected with Creek apata-i a *covering* of any kind, but also with Creek apatana *bullfrog*.[28]

WAHACHEE. A tributary of Broad river in Elbert county. 1818 Early Map: Wahatchee. 1849 White op. cit. 227: Wahachee. I am inclined to associate the name of this creek with Wauhatchie—in Cherokee Waya-chi *Mighty Wolf*—a term applied to a chief of the Lower Towns in 1756.[29]

WAKAFUDSKY. A creek about eight miles long, tributary to the Cemochechobee in Clay county. As the soil along this Creek is poor and not adapted to the grazing of cattle, the first element in the name can hardly be associated with Spanish vaca. Waka- may have come from Creek wako, the name of the Little Blue Heron (Florida caerulea caerulea L.); and -fudsky possibly refers to a point of land, from Creek faski *sharp, pointed*: hence perhaps the name *Heron Point*. The name Cemochechobee means *Big Sandy* creek—from Hitchiti samochi *sand* and chobi *big*.

WEHADKEE. A creek flowing southward from Randolph county, Alabama, and uniting with the Chattahoochee in Troup county, Ga. 1849 White op. cit. 547: Wehatkee. 1891 Eugene A. Smith, General Map of Alabama: Wehadkee Cr. This name signifies *White Water*, the source being Creek wi- *water* and hatki *white*. The Indians of the southeastern United States are not alone in designating a stream by a term equivalent to *white water*. The inhabitants of the Amazon region give the name *agua branca* to the water of certain rivers abounding in sediment.[30] There is, too, a Whitewater river in Wayne county, Indiana.

WILLACOOCHEE. See Alacoochee, above.

WITHLACOOCHEE. See Alacoochee, above.

YAHOOLA. A creek in Lumpkin county. 1849 White op. cit. 390. 1948 Rand McNally Map: Yahoola Cr. Yahoola may be a loanword from Creek yahola, the name of a male deity and also of the cry uttered by the assistants while the chiefs were sipping the black drink, which the Indians of the Gulf Coast prepared from the leaves of the yaupon. If Yahoola is a native Cherokee word, it may be connected with yahúlû or yahúli, the Cherokee name for a species of hickory as well as for a doodle-bug (Myrmeleon).[31] Yahula was also the name of a trader said to have been carried away by the spirit people.

[25] James Adair, The History of the American Indians (London, 1775), 82.

[26] Old Frontiers 547.

[27] Cf. Swanton, BAE-B 73.223.

[28] Cf. Swanton, BAE-B 73.223, fn. 1.

[29] See Brown, Old Frontiers 548.

[30] See B. José de Souza, Dicionário da Terra e da Gente do Brasil (São Paulo: Companhia Editoria Nacional, 1939), 6.

[31] See Mooney, Myths 547; Swanton, BAE-R 42.485 (1928).

BOOK REVIEWS

SOME SOURCES OF SOUTHERNISMS. By M. M. Mathews. University, Ala., University of Alabama Press, 1948. 154 pp. $2.50.

"Some Sources of Southernisms" is an augmented, popularly written, and published form of the fourth series of Dancy Lectures, delivered by the author at the Alabama College for Women on April 24 and 25, 1947. The sources considered, as the captions of the three parts indicate, are Nahuatl, Muskhogean, and African words.

By way of introduction, although within part one entitled "The Nahuatl Contribution to Southern Speech," Mathews observes the numerous vocabulary items which have originated in this country, and a sizeable aggregate of words and expressions with new meanings in America. He estimates that there are some 1700 Indian words other than place names in present-day and recent-past usage. In spite of the tendency to belittle the contribution of the United States to the English language, more and more students have been turning their attention to linguistic phenomena peculiarly American.

At the time of the conquest of Mexico, the center of the Nahuatl-speaking people was at the southeastern end of the great Mexican central plateau. Nahuatl groups also extended northward as far as the present state of San Luis Potosí, southward into Morelos and Guerrero, and eastward into Tlaxcala, Puebla, and Veracruz. Detached areas were located in several other states, in Guatemala, Salvador, and possibly as far south as Panama. At present the Nahuatl-speaking areas are much smaller, but the language is still spoken by nearly a million people.

Shortly after the conquest began, a number of Nahuatl words found their way into European languages via Spanish. Among those that came into English early are MEXICO, AZTEC, NAHUATL, GUATEMALA, TOMATO, COCOA, and CHOCOLATE. Certain Nahuatl words entered the English language twice, e.g. AVOCADO and CHILLI. They passed from Nahuatl to Spanish and ultimately into British usage in the latter part of the 17th century; American evidence for the use of the terms dates from the time our New World settlers made contact with Spanish-speakers in the Southwest.

The author lists about 60 additional words of Nahuatl origin which are or have been current in some varieties of Southern English, and in many instances gives the circumstances surrounding their adoption into the language. The majority are peculiar to the southwestern part of the United States, and probably all of them were adopted from Spanish rather than directly from Nahuatl. Most of these loanwords are current in popular Mexican Spanish as well, usually with the same orthography as the English.

Discounting regional variations and the changes languages undergo with time, it seems possible to the present reviewer to arrive at the approximate channel through which a word has passed in its course from Nahuatl to English by tracing its phonemic shape through present-day dialects of the languages involved. Assuming that the following words came into the United States by way of the southwest frontier, the languages which must be considered are English (E), Spanish (S), and Nahuatl (N). The meanings of the Nahuatl accompany the phonemic transcriptions below.[1]

[1] The English transcriptions represent my own dialect, the formulation based on Trager, G. L. and Smith, H. L., Jr. An Outline of English Structure, I. Phonology. Washington, D. C., Foreign Service Institute, Department of State (1949). Nahuatl and Spanish are transcribed according to my phonemic analyses of the two languages, dialects of Matlapa, San Luis Potosí.

1. AVOCADO E /ævəkádə/ < S /aguakáte/ < N /awakaλ/ *alligator pear.*

2. CHICLE E /číkəl/ < S /číkle/ < N/ čikλi/ *gum from the naseberry or sapodilla.*

3. CHILLI E /číli/ < S /čile/ < N /čilli/ *chilli pepper.*

4. COYOTE E /káyòt/ < S /koióte/ < N /koyoλ/ *prairie wolf.*

5. HUISACHE E /wíysæč/ < S /uisáče/ < N /wisač/ *wild acacia.*

6. JACAL E /hàkáhl/ < S /xakál/ < N/ šahkalli/ *hut.*

7. MESQUITE E /məskíyt/ < S /meskíte/ < N /miskiλ/ *a deep-rooted, shrub-like tree.*

8. NAHUATL E /náwatəl/ < S /náuatl/ < N /nawaλ/ *language of the Aztecs or Nahuas.*

9. OCELOT E /ásəlàt/ < S /oselóte/ < N /oseloλ/ *a large American spotted cat.*

10. PEYOTE E /pyóti/ < S /peyóte/ < N/ peyoλ/ *several varieties of cactus plant.*

11. SAPOTE E /səpóti/ < S /sapóte/ < N/ capoλ/ *a tropical fruit.*

12. SHACK. Variant of JACAL.

13. TAMALE E /təmáli/ < S /tamále/ < N /tamalli/ *dough made with corn meal and shortening, with pieces of seasoned meat inside, the whole thing wrapped in corn husk.*

14. TEQUILA E /təkíylə/ < S /tekíla/ < N /tekillan/[2] *a place name.*

Unfortunately the other Nahuatlisms of the Southwest are not included in my English vocabulary; with a longer list, some analogical patterns in the adaptation of Spanish forms to English might be observed.[3]

The remaining loanwords noted by Mathews are listed below. Alongside each, I give the Spanish and Nahuatl phonemically transcribed and the Nahuatl meaning.

15. AMOLE S /amóle/ < N /a·molli/ *soap plant.*

16. ANACAHUITE S /anakauíte/ < N/ anak^{m}awiλ/ *paper tree.*

17. ANAQUA. Variant of ANACAHUITE.

18. ATOLE S /atóle/ < N /atolli/ *a drink made of corn meal and water.*

19. AYACAHUITE S /aiakauíte/ < N/ ayak^{m}awiλ/ *a species of pine.*

20. BISNAGA S /bisnága/ < N /wicnawak/ *a species of thorny cactus.*

21. CACOMISTLE S /kakomískle/ < N/ λahkomisλi/ *a small carnivorous animal.*

22. CACOMITE S /kakomíte/ < N /kakomiλ/ *an herbaceious plant.*

23. CAMOTE S /kamóte/ < N /kamohλi/ *sweet potato.*

24. CANATILLA. No information on this term.[4]

25. CAPULES. Possibly a variant of CAPULIN.[4]

26. CAPULIN S /kapulín/ < N /kapolliN/ *a variety of cherry tree or its fruit.*

27. CHACHALACA S /čačaláka/ < N/ čačalaka/ *twittering of a bird.*

28. CHAPOTE. Variant of SAPOTE.

29. CHICALOTE S /čikalóte/ < N /čikaloλ/ *a white-flowered prickly poppy.*

30. CHILACAYOTE S /čilakaióte/ < N/ cilakayohλi/ *a species of gourd.*

31. CHILAQUILES S /čilakíles/ < N /čilaliλ/ *a stew made with chilli, onion, tomatoes, and tortillas.*

[2] *m* is a morphophonemic symbol denoting nazalization of the preceding vowel.

[3] Dávila Garibi, J. I. Del Nahuatl al Español. Tacubaya, D. F. (1939) points out a number of regularities in the hispanization of Nahuatl words, based on word endings, the thematic vowel, and the tonic vowel.

[4] I find no record of items 24 and 25 in either American English or Mexican Spanish. The sources consulted were Webster's New International Dictionary of the English Language, 2d ed., unabridged. Springfield, Mass., G. & C. Merriam Co. (1945); Craigie, W. A. and Hulbert, J. R., A Dictionary of American English on Historical Principles. Chicago, The University of Chicago Press (1938-1943). 4 vols.; Santamaría, F. J., Diccionario General de Americanismos. 1. ed. México, D. F., Editorial P. Robredo (1942). 3 vols.; Dávila Garibi, op. cit.; Robelo, C. A., Diccionario de Aztequismos, o sea Jardín de las Raíces Aztecas. México, D. F., Ediciones Fuente Cultural (1948?).

32. CHILTEPIN S /čiltepín/ < N /čiltekpiN/ *a tiny chilli pepper.*

33. CLACO S /kláko/ < N /λahko/ *half.*

34. COMAL S /komál/ < N /komalli/ *an earthenware disk for cooking.*

35. ESQUITE S /eskíte/ < N /iskiλ/ *popcorn.*

36. GACHUPIN S/gačupín/ < N /kakcopina/ *shoes that prick (with spurs).*

37. HUAJILLO S /uaxíio/ (/uáxe/ + Sp. dim. /-iio/) < N /wašiN/ *a species of spiny shrub.*

38. JICAMA S /xíkama/ < N /šikamaλ/ *a tuberous root.*

39. KNOCKAWAY. Variant of ANACAHUITE.

40. McCARTY. Variant of MECATE.

41. MECATE S /mekáte/ < N /mekaλ/ *maguey-fiber rope.*

42. MESCAL S /meskál/ < N /meškalli/ *a drink made from juice of the maguey plant.*

43. METATE S /metáte/ < N /meλaλ/ *grinding stone.*

44. NIXTIMAL S /nistamál/ < N /neštamalli/ *tortilla dough.*

45. OCOTE S /okóte/ < N /okoλ/ *a species of pine.*

46. OCOTILLO S /okotíio/ (/okóte/ + Sp. dim. /-iio/) *candlewood.* See OCOTE.

47. PEYOTILLO S /peyotíio/ (/peyóte/ + Sp. dim. /-iio/) *a species of small spineless cactus.* See PEYOTE.

48. PINOLE S /pinóle/ < N /pinolli/ *a drink prepared with corn meal, water, sugar, cinnamon, chocolate, and other ingredients.*

49. SACATE S /sakáte/ < N /sakaλ/ *grass.*

50. SACATON S /sakatón/ (/sakáte/ + Sp. aug. /-on/) *a tall fodder grass.* See SACATE.

51. SIN-SONTLE S /sinsónte/ or /sinsóntle/ < N /sinsonλi/ *a variety of songbird.*

52. SOTOL S /sotól/ < N /cotolli/ *a yucca-like plant.*

53. TEOCALLI S /teokáli/ < N /tiokalli/ *temple, church.*

54. TEOCOTE S /teokóte/ < N /tiokoλ/ *a coniferous plant.*

55. TEPEJILOTE S /tepexilóte/ < N/ tepe·šiloλ/ *a species of corn plant.*

56. TEQUESQUITE S /tekeskíte/ < N/ tekeškiλ/ *a salty stone.*

57. TOLOACHE. No information on the Nahuatl origin of this term.

58. TULE S /túle/ < N /tollin/ *bulrushes.*

59. ZOPILOTE S /sopilóte/ < N /copi·loλ/ *vulture.*

In part two, "Some Muskhogean Words in Southern Vocabulary," attention is drawn mainly to the names of tribes, streams, places, people, and plants proved or believed to have been borrowed from languages of the Muskhogean family (Alibama, Apalachi, Chickasaw, Choctaw, Muskogee or Creek, Koasati, Seminole, Yamacraw, and Yamasi). The Muskhogean family represents one of the larger speech stocks of native North America; the aboriginal habitat of the tribes noted was in the southeastern part of the United States, comprising the area from the Gulf of Mexico to Tennessee, and as far east as the Georgia coast. The author records some genuine analyses, as well as speculations, controversial opinions, and folk etymologies. A considerable number of Southeastern terms are shrouded in obscurity: attempts at etymologies of Indian names in the region are cluttered up with what now must be regarded as impossible explanations. The following are suggested as being of Muskhogean origin:

Tribal names: APALACHI, CHICASAW, SEMINOLE, and CHOCTAW.

Stream names: CHATTAHOOCHEE, TALLAPOOSA, COOSA, ALABAMA, CAHABA, TUSCALOOSA, TOMBIGBEE, TUSCUMBIA, TENNESSEE, CONECUH, ESCAMBIA, TENSAW, MOBILE, and TICKFAW.

Place names: NOTASULGA, CHACAHOULA, CATAHOULA, SYLACAUGA, OPELIKAN, AUTAUGA, TALLADEGA, SATILPA, SALITPA, BASHI, TALLAHATTA, ULCANUSH, and TATTILLABA.

Personal names: PUSHMATAHA and OCEOLA.

Plant names: CASSINE or CASSENA, CATALPA, COONTIE or COONTE, TITI, and WAHOO.

Miscellaneous words: SACALAIT, CHUMPA, and BAYOU.

Part three, "Africanisms in the Plantation Vocabulary," deals with terms which entered the English language from the speech of Negroes. Negro slaves were drawn primarily from West Africa, as far north as Senegal and as far south as Angola. It is possible to trace a few words in American usage to Senegal, Gambia, Nigeria, Liberia, Sierra Leone, Dahomey, the Congo, Angola, or other parts of West Africa.

Mathews leans heavily on the unpublished work of L. D. Turner concerning the speech of the Gullah Negroes of South Carolina and Georgia; he regards the existence of certain words in the Gullah dialect as substantial indication of their African provenience. The Africanisms cited here are of two types: (1) words of African ancestry transmitted into English, and (2) words from Spanish, Portuguese, Dutch, French, Arabic, and possibly other non-West African languages, brought to the New World by slaves. Examples of the first type are: GULLA, OBEAH, ZOMBI, HOODOO, VOODOO, CALINDA, BARRAFOU, QUAQUA, BANJO, POOR JOE, COOTER, CHIGGER, PINDER, GOOBER, YAM, GUMBO, BENNE, CALA, JAMBALAYA, FOO-FOO, GUNGER (BREAD), BOZO, BUKRA, CONGO, DONEY, EBO, JUBA, JUKE, LAGNIAPPE, and TOTE. Examples of the second type include CUSH, PICKANINNY, and TABBY.

Three maps accompany the text of this work: (1) "Area once occupied by the Muskogees," (2) "The Gullah region," and (3) "West African slave trade region." Word and subject indices are found at the end of the volume, the former with pronunciations indicated according to IPA notation.

KENNETH CROFT
INSTITUTO MEXICANO-NORTEAMERICANO DE RELACIONES CULTURALES

Carlos Drumond, Da partícula háb.a do tupi-guarani. Etnografia e língua tupi-guarani, N° 12. Universidade de São Paulo, Faculdade de Filosofia, Ciências e Letras, Boletim LXVI. São Paulo, 1946. 64 pp. Id., Notas sôbre algumas traduções do Padre Nosso em tupi-guarani. Etnografia e língua tupi-guarani, N° 14. Universidade de São Paulo, Faculdade de Filosofia, Ciências e Letras, Boletim XC. São Paulo, 1948. 20 pp.

J. Philipson, Em abono de Baptista Caetano. Notas a propósito de três poesias tupis atribuidas a Anchieta. São Paulo, 1947. 35 pp.

Curt Nimuendajú and R. F. Mansur Guérios, Cartas etno-lingüísticas. Revista do Museo Paulista, n. s. 2.207–41 (São Paulo, 1948).[1]

Augusto Knudsen Larraín, Un Diccionario de la Lengua Yagán. Revista del Museo Histórico Nacional de Chile 1.521–33 (Santiago de Chile, 1945).

P. Sebastián Englert, Los elementos derivados del Aymará y Quichua en el Idioma Araucano. Universidad de Chile, Anales de la Facultad de Filosofía y Educación, Sección de Filología, 1.5–27 (1934). Id., Araucano y Rapanui. Ensayo de comparación lingüística. Op. cit. 1.28–35 (1934). Id.,Lengua y Literatura Araucanas. Op. cit. 1.62–109 (1936).[2]

Ramón Heyser E., Análisis comparativo de la lengua huitota. Instituto de Estudios Superiores de Montevideo, Boletín de Filología 5.149–92 (1947).

Leopoldo O. Benítez, El problema de la grafía guaraní. Op. cit. 5.226–34 (1947).

Félix Cardona Puig, Vocabulario del dialecto Kárro del río Guainía. Acta Venezolana 1.221–30 (1945).

The two items by Carlos Drumond continue the São Paulo series on Tupí-Guaraní

[1] This correspondence is included with the present group of Miscellaneous Papers which deal with Americanist work originating in Latin America; there is partial overlapping here with Rowe's previous review of the entire volume 2 of Revista do Museu Paulista (see IJAL 16.150–1 [1950]).

[2] Reviewed separately, but from a different viewpoint, by Osborn (see IJAL 14.209 [1948]).

ethnography and language first reviewed in IJAL 12.45–8 (1948). In his first paper, Drumond attempts to reconstruct certain features of coastal Tupí pronunciation in the first two centuries of colonization by a comparative analysis of data from various colonial authors, with special reference to the particle háb.a; a small section is also devoted to a semantic analysis of this morpheme. The second paper consists of a phrase-by-phrase comparison and attempted grammatical analysis of the texts of two 17th-century translations and 4 recent translations of the Lord's prayer into various Tupí dialects. It continues in the philological tradition established in the previous volumes of this series.

Philipson's study is mainly a literary criticism and eulogy of Baptista Caetano's edition and translation of three Tupí poems attributed to Anchieta, with comparison to an edition of the same poems by M. de L. de Paul Martins. An attempt is made to improve some of the translations, and to give reasons for the improvement.

Nimuendajú's correspondence with Mansur Guérios, initiated by the latter's request for information, is very interesting because it gives an insight into Nimuendajú's views on linguistic comparison, especially as relates to Brazilian Indian languages. Nimuendajú stresses the need to follow a rigorous comparative method such as has been worked out in Indo-European linguistics, in spite of the handicap presented by the phonetic inadequacy of much of the material. He is especially critical of far-fetched semantic comparisons such as have been attempted by Rivet, whom he mentions by name in several places (cf. p. 234). In answer to Mansur Guérios' intention to publish a vocabulary of Botocudo as spoken along the Rio Doce, with comparative references to materials by Ehrenreich and others, Nimuendajú gives a rather extensive listing of unpublished linguistic material, mainly vocabularies, on various Tropical Forest and East Brazil groups, and a word list comparing Botocudo and Tupi-Ingain and Kaingang, with phonetic table. He also mentions Kamakã of Aratimbó, Krenak, and Botocudo of Santa Catarina as possibly comparable languages in Mansur Guérios' frame of reference. The two correspondents then engage in a discussion on linguistic method, with Mansur Guérios advocating exact phonetic transcriptions and acceptance of all forms of a language as correct, in contrast to some of the attempts of the São Paulo group to find the "correct literary" form of 17th-century Tupí-Guaraní. In regard to comparative work, Mansur Guérios and Nimuendajú both partially agree that general phonetic laws operative for Indo-European, such as the change from p to f, and not vice versa, are not necessarily valid in South American Indian languages, where other transitions, such as that from p to p^h to h may be found.

Larraín pays tribute to missionary Thomas Bridges and his Yaghan-English dictionary of approximately 32,000 entries, which is now in the hands of Ferdinand Hesterman of the University of Münster, Westphalia, to be edited for publication. The author gives an extremely short description of Tierra del Fuego and the Fuegians, who have achieved "el desarrollo y perfeccionamiento lento de un idioma a través de innumerables siglos, en las regiones más australes e inhospitalarias del globo terrestre." (p. 522). He also includes some interesting information on Bridges' method and problems in learning Yaghan.

Englert's three papers on Araucanian, though published some time ago, have considerable bibliographic interest, and are therefore included here. The author's interest is primarily comparative and etymological; the first two papers deal with Araucanian vocabulary that might have been borrowed from Quechua and Aymará,

and Rapanui (Easter Island) respectively. Although Englert is quite serious about possible Oceanic connections of South American Indian languages, he states quite unequivocally that presumable etymologic connections between Araucanian and Rapanui are highly uncertain. In his major study of Araucanian language and literature he gives a useful summary, with some bibliographic material, of linguistic work on Araucanian since the contact period and points out that Araucanian is the best known and most studied of the Indian languages spoken in Chile. He also includes a survey of the study of Chilean toponymy of Araucanian origin. The problem, according to Englert, is to find the genetic affiliations of Araucanian, and in this context he also reviews some of the ethnological literature about the origin of the Araucanians, primarily Latcham. He then gives a summary of the "phonetics, psychology, morphology, and syntax" of Araucanian in which he notes the relative "poverty" of the language, spoken as it is by a primitive people "sin evolución ni progreso" (p. 86)., and gives a few paradigms to exemplify the morphology. The section on literature contains some summary data on folklore, both narrative and song.

Heyser E.'s study of Witoto consists mainly in showing the fallacies of previous attempts to relate this language to various linguistic groupings; he states quite categorically that Witoto is totally unrelated to any of the Old World language families, and that any relationship to New World languages would have to be established on the basis of a knowledge of the structure of all the languages under comparison. While this may seem obvious to North American linguists, it should not be forgotten that much of the sort of thing that Heyser E. is warning against is still to be found in the South American Indianist literature. In regard to Witoto itself, Heyser E. gives a fairly adequate statement of the phonetic inventory in a transcription which is however cumbersome, due to typographical reasons (pp. 187–9). In conclusion he opines that Witoto is a language in a state of transition from the agglutinative to the inflectional type,—presumably in terms of 19th-century evolutionist typology.

Benítez deplores the impressionistic approach to Guaraní phonetics which has prevailed throughout so much of the history of Guaraní orthography and has led to complete "anarquía gráfica" (p. 227). He commends the recommendations of the Cultura Guaraní group which seems to have arrived at a fairly reasonable phonetic orthography.

Cardona Puig's little paper, in addition to some fragmentary ethnographic data, contains a topically arranged short vocabulary in fairly reasonable phonetic transcription, followed by a list of phrases illustrating grammatical patterns.

PAUL L. GARVIN
UNIVERSITY OF OKLAHOMA

LANGUAGE INDEX FOR VOLUME 16[1]

Alabama-Koasati 122f.
Alakaluf 54
Algonkin-Wakashan 54
Algonkian 154f.
Allentiac-Millcayac 54
Amuzgo 52, 110
Apache 52, 110
Apalachee 122, 204f.
Araucanian 212f.
Araucan-Mapuche 54
Arawak 53, 203f.
Arda 54
Assisiboin 62
Atalan-Yunca 54
Athabascan 1
Athapascan 52
Auaké 54
Ayacucho 137f.
Aymará 40f., 54, 109f., 140f., 212
Ayook 52f.
Aztec 2f., 56, 102f., 104, 109, 153
Azteco-Tanoan 50, 54
Bannack 126f.
Bella Bella 99, 154
Bella Coola 163f.
Biloxi 61, 65, 114f., 172f.
Bororo-otuké = Coroados 54
Botocudo 212f.
Cabécar 55
Cachiquel 52, 109
Cáhita 52f., 106
Caingang 151
Camacan 151
Camurú 150
Capishaná 151
Carib 53, 87f., 109, 151
Cariri 150 Cashibo 198f.
Catawba 61, 65f., 114, 173f.
Cayriri = Kariri 54
Cayubaba 54
Chanabal = Chañabal 53
Chapakura 54
Charrua 54
Chatino 109f.
Chehalis 154, 158f.
Chehalis, Lower 163f.
Chemakum 152, 154
Cherokee 109, 110, 204f.
Cheyenne 152, 153
Chiapaneco 53
Chibcha 53
Chicimeca 2, 8, 53, 74
Chinanteca 53, 110
Chipewyan 109
Chiquito 54
Chiricahua 109
Chirino 54
Chitimacha 109
Choco 53, 110
Choctaw 122f., 204f.
Chol 55, 109
Cholona 54
Chontal 35f., 53, 56, 109
Clallam 154, 163f.
Coca 52
Cocama 151
Chochabot 54
Coeur d'Alené 154, 162f.
Columbia 154, 162f.
Comanche 52, 55, 109
Comox 154, 162f.
Cora 52
Coroado = Bororo-otuké 54
Cowitchan 154
Cowlitz 154
Creek 122f., 203
Crow 61f., 113f., 168f.
Cuicatec 109, 110
Cuitlateco 52
Cunza-Diaguita 54
Cuzco 137f.

[1] This index lists only American Indian languages; the numbers refer to pages in Volume 16 of IJAL. Numbers followed by f. indicate that the language is mentioned not only on the page given, but also in the following pages of the same article or review; so also, if the language forms the main topic of the article or review, it is indexed by title page reference, with f.

Čiwere 61, 63, 114f., 170f.
Dakota 61f., 114f., 171f.
Dakota, Santee 174f.
Dakota, Teton 174f.
Dakota, Yankton 174f.
Dzubuka 150
Eskimo 109
Eskimo-Aleut 54
Esmeralda 54
Flathead 154
Fraser 162f.
Fraser, Lower 154
Futa-Fula 109
Gestapuya 54
Guahibo 54
Guajajara 151
Guaraní 213
Guarauno = Warrau 54
Guató 54
Heve 53
Hokan-Siouan 53
Hidatsa 61f., 113f., 168f.
Hitchiti 122f, 204f.
Hopi 67f.
Huari 54
Huasteco 53, 107f.
Huave 53, 55f., 109
Huichol 55f., 109
Hupa 109
Huron-Wyandot 152, 154
Inca 137f.
Ingain 212
Ipuriná 151
Iroquois 154
Itonama 54
Ixtapa 75
Ixtenco 2f.
Kahuapana 54
Kaingaing 212f.
Kalfana 54
Kalispel 154, 162f.
Kamakã 212
Kañari 54
Kanitchana 54
Karaya 54
Kansa 61, 64
Kariri = Cayriri 54
Kárro 211
Katukina 54
Kekchi 109
Kickapoo 110
Kipea 150
Koasati 123f.
Kofane 54
Krenak 212
Kutenai 154f.
Kwakiutl 99f.
Lacandón 108
Leko 54
Lhungen (see Lkungen) 154
Lillooet 154, 162f.
Lkungen (see Lhungen) 162f.
Lule-vilele 54
Lummi 162f.
Lummi-Songish 154
Macu 151
Macushi (Carib) 87f., 109, 151
Magu 6f.
Maidu 185f.
Maidu, Northeastern 185f.
Maidu, Southern 185f.
Máku 54
Mame 53, 109
Mandan 61f., 114f., 170f.
Maquiritare 151
Mashubi 54
Maskoi = Machicui 54
Mapuche = Araucan 54
Matoco-Mataguayo 54
Matlazinca 1, 53, 74, 110
Maya 53, 55, 91, 106, 108, 109f., 153, 193f.
Maya-Quiche 52
Mazahua 1f., 53, 55, 73f., 109
Mazatec 53, 55f., 107, 109, 110
Miami 67
Miskito 20f.
Mixe 47, 52f.
Mixe-Zoque 46, 50
Mixtec 1, 55f., 82f., 109
Mixtec-Otomi 53
Mixteco 53, 110
Mixteco-Montañez 53
Mobima 54
Mokóa 54
Mosan 154f.
Mosetan 54

Motul 53
Múra 54
Muskogee 109f., 124
Muskhogean 122, 153, 204f., 208f.
Mutsun 53
Na-Dene 54
Nahuat 108
Náhuatl 53, 55f., 103f., 109, 153, 208f.
Nambikawara-Tarunde 152
Nambikúara 54
Nanaimo 154, 162f.
Natchez 124
Navaho 55, 109f., 152
Nehelim 162f.
Nespelim 154
Névome 53
Newette 99
Nisqualli 154, 158f.
Nootka 53, 109
Nootsak 158f.
Ocuilteca 1
Ofo 61, 65, 119f., 172f.
Okanayon 165f.
Olmeca 53
Omaha 170f.
Omaha-Ponca 61, 64, 119, 170f.
Okanagon 154
Opata 53
Osage 61, 64, 118f., 170f.
Otí 54, 151
Otomi 1f., 55f., 73f., 109f.
Pame 1f., 53, 73, 110
Pame-Chichimeca 109
Pano 54
Papabuco 53
Pend d'Oreille 162f.
Pentlatch 162f.
Penutian 53
Pima 53
Piro 55
Ponca 170f.
Popoloca 2, 50, 53
Popoluca 56, 109
Potawatomi 109
Proto-Mazuhua 73f.
Proto-Muskogean 122f.
Proto-Otomi 1f., 73f.
Proto-Siouan 61f., 113f., 168f.
Proto-Zapotec 132
Puelche 54
Puinave 151
Puinawe 54
Puruha 54
Quapaw 61, 64
Quechua 53f., 109f., 212
Quiché 53
Quichua 137, 142, 143
Quileute 154
Quinault 154, 163f.
Quito 146f.
Runasimi 137
Sáliba 54
Salish, Salishan 152, 154, 157f.
Salish (Coast) 154
Salish (Interior) 154
Samuku 54
San Blas 109
Sanpoil 154
Santee 62
Sapuya 150
Satsop 154, 162f.
Sek 54
Seminole 203f.
Seshelt 162f.
Shawnee 67
Shipibo 110
Shiriana 54
Shuswap 154, 162f.
Sierra Popoluca 46, 47
Siletz 163f.
Sinaloa 53
Siouan 61f., 113f., 168f.
Siouan. Ohio Valley 168f.
Sisiatl 154
Skagit 154, 162f.
Snohomish 154, 162f.
Sonora 53
Southern Paiute 109
Spokane 162f.
Squamish 154, 162f.
Tabascan Chontal 110
Taino 203
Takelma 110
Taos 50, 109f.
Tarahumar 53, 56, 109
Tarascan 2, 53, 55f., 109

Tecozautla 9f.
Teguima 106
Tehuelche 54
Temoaya 2f.
Tepecano 53
Tepeguano 53
Tepehuana 53, 55f.
Tepené 4f.
Tepenené 4f.
Tequistlateco 35
Tenoxtitlan 75f.
Teton 62
Thompson 154, 162f.
Tilapa 4f.
Tillamook 154, 162f.
Timote 54
Timucua 203f.
Tlachichilco 6f.
Tlalocan 46
Tlapanec 109f.
Tlingit 110
Tojolabal 53, 109
Tonkawa 109, 152, 154
Toreva 67
Totomaco 54
Totonac 2, 53, 56, 109, 110
Trike 53
Trique 110
Trumai 54
Tucano 151
Tukano 54
Tunica 110
Tupí 151, 152, 204, 212f.
Tupi-Guarani 53, 151, 211f.
Tutelo 61, 65f., 119f., 175f.
Tuyuneiri 54
Twana 154, 162f.
Tzeltal 53, 56, 91, 106, 019
Tzendal 53
Tzotzil 53, 55, 91f., 107f.
Tzutuhil 53
Θegiha 61f., 114f., 168f.
Waicuri 53
Waikuru 54
Wakashan 99, 100, 154, 155
Wapishana 151
Warrau = Guaranno 54
Wenatchi 154
Wichita 179f.
Winnebago 61, 63, 114f., 170f.
Witoto 54, 213f.
Wiyot 154
Xalacapan 108
Yaghan 212f.
Yakut 102
Yamana = Yahgan 54
Yankton 62
Yaruro 54
Yuma 109
Yurakare 54
Yuri 54
Zapaluta 53
Zapatec 1, 53, 55, 56, 107, 109f., 132f.
Zapoteco-Nexitza 53
Zapoteco-Serrano 53
Zapotec, Tehuantepec 132
Zapoteco del Valle 53
Zimapan 10f.
Zinaconteco 91
Zoque 47, 52f., 56, 107f.